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The Brazilian Export Duty on Rubber.

THE suggestion is made by a friend of THE INDIA RUBBER WORLD that an important omission has been made in the schedules of reciprocal trade with our Spanish-American neighbors in not including India-rubber, one of the chief commodities which come to us from them. With a view to facilitating the exchange of such products of each country as do not compete directly with labor in the other, the United States and Brazil, for instance, have agreed upon certain concessions in the matter of import duties. Coffee, which cannot be grown here, is admitted from Brazil free of duty, in return for which—and other considerations—Brazil consents to receive our hardware at a lower import duty than is levied upon similar wares from England, where a customs tax upon coffee is still imposed. Brazil continues to levy an export duty on rubber, however, the removal of which, according to our correspondent, would permit American manufacturers to buy this article at a lower rate, and might become a means of extending our reciprocal trade.

Supposing the latter proposition to be true, it does not follow that an attempt to secure a remission of the rubber duties would be practicable. Brazil is obliged to have a public revenue and naturally will seek to raise it in the manner which shall seem most equitable. An export duty on a commodity in which a country holds a monopoly, as in the case of Pará rubber, and which the rest of the world is forced to buy, may be the easiest of all taxes to collect. It is an income tax, pure and simple, levied upon the people who make their living in the country, in proportion to the amount of business done by each. The rubber forests cannot be taxed, as farm-lands in this country, and the rubber exporters could not be reached by a tax upon personal property. It is perfectly equitable, however, that the exporter of a thousand tons of crude rubber shall contribute twice as much to the maintenance of the government which protects him as his neighbor who exports only five hundred tons. The direct tax upon the people of Grão Pará, for example, which would have to follow the abolition of export duties, could hardly be levied so equitably or satisfactorily.

In admitting American hardware and some other products on more favorable terms than like goods from Europe the Brazilian Government has hoped for some compensations in trade to counter-balance the probable loss in revenues, but since all the revenues cannot be given up, it is probable that the rubber export duties would be the last to be surrendered. Another consideration is that it is by no means certain that rubber would be cheapened by the amount of the duties if the latter were removed. Rubber has no fixed price in the markets of the world, but fluctuates to a greater extent than any other commodity of like importance. Neither Brazilian nor American merchants are able to control the price to-day, and rubber selling at 70 cents now might, although the duties should be removed, sell before the end of the year at $1. When prices become less variable the effect of the duties as a factor may be calculated, but not sooner. Meanwhile American buyers

at least have the satisfaction of knowing that no discrimination is made against them, but that all the rubber exported from Brazil pays duty to the home governments at the same rate.

Rubber Consumers Combining.

A COMBINATION has been formed among some of the rubber companies, with a view to buying more advantageously crude rubber and the other materials, including whiting, litharge and cotton-duck, required by manufacturers. The plans for this combination have been under consideration for some time past, and the agreement has not yet been signed by all those whose co-operation is desired. Those named as having joined in the movement so far are the L. Candee Co., of New Haven; the Goodyear Metallic Rubber Co., of Naugatuck, Conn.; the American Rubber Co., of Boston; the National India-Rubber Co., of Bristol, R. I.; the Boston Rubber Co.; the Meyer Rubber Co., of New Brunswick, N. J., and some others. In combination with them are the New York Commercial Co., at the head of which is Charles R. Flint, importers of crude rubber, with important connections at Pará.

It is understood that the plans of the parties to this combination include the subscription of capital sufficient to equip factories for some of the more important materials used in rubber manufacture. One advantage, it is felt, will be a more independent position with regard to the lead trust, which now controls prices on an important ingredient. One statement which has come out with regard to this new movement follows:

"The Woonsocket Rubber Co., and the Boston Rubber Shoe Co. import all their own crude rubber, and consequently were not invited to join the combine. There will probably be no effect on the market or prices of rubber goods resulting from the deal, as without the presence of the Woonsocket and Boston companies in the combine prices cannot be changed."

Rubber at the Chicago World's Fair.

INDIA-RUBBER has been provided for in the plans for the organization of the World's Columbian Exposition, at Chicago. The "Classification" adopted by the management of the Exposition provides for twelve Departments, indicated by letters of the alphabet, "Department H" to be devoted to manufactures. Departments are to be divided into Groups and these into Classes. The scope to be given to rubber-goods exhibitors is shown by the following excerpt from the classification arranged for Department H:

GROUP 109.

RUBBER-GOODS, CAOUTCHOUC, GUTTA-PERCHA, CELLULOID AND ZYLONITE.

Class 683. Clothing; Mackintoshes, capes, coats, boots, shoes, hats, etc.
Class 684. Piano- and table-covers, horse-covers, carriage-cloth.
Class 685. Stationers' articles.
Class 686. Druggists' articles, toilet articles.
Class 687. Medical and surgical instruments. (See also Group 148.)
Class 688. House-furnishing articles, mats, cushions.
Class 689. Hose, tubes, belting, packing.
Class 690. Insulating compounds.
Class 691. Toys of Rubber.
Class 692. Gutta-percha fabrics.

Group 148, referred to above, embraces "instruments and apparatus of medicine, surgery and prosthesis." It is to be presumed that other applications of India-rubber and gutta-percha will find room in the Electricity Building, in the extensive Department, J, devoted to Electricity and Electrical Appliances. Crude rubber is provided for in Department A, devoted to Agriculture, Food and its Accessories, Forestry and Forest Products, Agricultural Machinery and Appliances, under this sub-division.

GROUP 19.

FORESTRY, FOREST PRODUCTS.

* * * * * * * *

Class 106. Gums, resins, vegetable wax or tallow wax, including caoutchouc, gum senegal, tragacanth, Arabic, mesquite gum, myrrh, copal, etc.

It will be seen from the above that opportunity will be given for the display of rubber and rubber goods in every branch of the industry, in the regularly-organized departments, so that no rubber firm need fail of recognition in case it desires to make an exhibit. There would be a better representation of this industry, however, as it exists in the United States, if the rubber-manufacturers should combine in preparing a special rubber exhibit, and it is not yet too late to undertake such an enterprise.

Obituary.

JUNIUS SCHENCK, vice-president of the Eureka Fire Hose Co., of New York, died very suddenly in Syracuse last month. Mr. Schenck was one of the pioneers in the manufacture and sale of fire hose and was widely known. As a salesman he was extremely successful, and subsequently as an executive he had few peers. At the time when rubber hose was driving the old-fashioned leather hose out of the market Mr. Schenck was the man who, more than any other, brought it to the attention of fire departments. He was constantly inventing improvements in the manufacture of rubber hose and several patents were issued to him. One of these was for producing what has been widely known in the trade as carbolized rubber hose. He was also instrumental in perfecting the looms that to-day manufacture seamless woven hose. It is said that the first piece of hose woven under the machine that Mr. Schenck and Almet Reed invented, which was but a few feet long, cost $20,000. This resulted in the organization of the Eureka Fire Hose Co., with Mr. Reed and Mr. Schenck among its incorporators and executive officers. Mr. Schenck was general manager of the company from its inception. Mr. Reed died a few years ago and his son, J. Van D. Reed, succeeded to the presidency of the company, Mr. Schenck being made vice-president and general manager. An active, intelligent, energetic business man, Mr. Schenck visited every city and village of importance in this country, and was well known to city officials and heads of fire departments in most of them.

The India-Rubber Market.

IN some respects the outlook is
Particularly cheery,
While other features now present
An aspect rather dreary.
Of India-rubber consciences
Supply exceeds demand,
And dealers in this kind of goods.
A surplus have on hand.

But soon the spring trade will begin,
In India-rubber stories
Of piscatorial exploits
Exceeding former glories;
And seven-inch trouts will stretch to twelve,
When these make their appearance,
While dealers will of older styles
Of stale yarns make a clearance.

Elastic matrimonial ties
Are an inferior article;
Sales all along this line of wares
Have not improved a particle.
Dealers with labored eloquence
Make efforts to excuse all
Defects, but offers, even at
Cut prices, meet refusal.
A slump has been experienced
In India-rubber credits;
This kind of goods, I really think
It may be said, has had its
Run in trade, that now requires
An article more rigid,
And those who ask for older styles
Receive an answer frigid.

Per contra, rumors are afloat
Of a new application,
By female novelists who hope
To stretch imagination.
Their India-rubber pruriency
Outstretching decent borders,
Suggests this more extended use
That may increase their orders.

And gum elastic principles,
And pledges gum elastic,
That stretch to fit all circumstance,
And are so smooth and plastic
That they can take upon them shapes
That never were expected,
Are goods that politicians shrewd
Have never yet rejected.

But, most encouraging of all,
Some doctors of religion
Have found a use in, what Chinese
Are wont to call, "*joss pigeon*";
They find that more elastic creeds
And more elastic teaching
Their flocks demand; so now they turn
To India-rubber preaching.

So, on the whole, the outlook is
As fair as was expected;
And some signs of a future boom
Of shares may be detected
In gum elastic franchises
Of cable roads and trolleys;
While firm and active are all lines
Of vices and of follies.

R. HYMER.

Singer Machines in Many Lands.

THE Singer Manufacturing Co. have been at special pains to produce pictures representing the different nationalities using their machines, portraying the costumes of the operatives at work. Among them are the women of Seville, Barcelona, Salamanca, Corunna, in Spain; Naples, in Italy; Norway, Sweden, Japan, Algeria, Manila and Zululand. The pictures were taken on the spot, have been tastefully colored, and are a study of character and costume, the fetching display in the latter of the women of Spain and Italy comparing strangely with the severe style of Zululand and the simplicity of Manila. The company felicitate themselves upon the fact that they have given Sweden several thousand "Singers" in return for the rare singers, such as Jenny Lind and Nilsson, that land has given to the world. The company will soon have made its eleven millionth-machine, and in accordance with its custom that millionth will be given away. It is not without testimonials from rubber companies as to the value of its work, and treasures them carefully.

The Pará Rubber Shoe Co.'s Affairs.

[FROM OUR BOSTON CORRESPONDENT.]

DESPITE the many rumors on the subject, there is practically no change in the affairs of the Pará Rubber Shoe Co. During the past fifteen days nearly as many different reports have been afloat—several of them to the effect that the works had been sold. Alpheus H. Hardy, the present treasurer of the company, when called upon by your correspondent in regard to the stories afloat to the effect that the company was about to resume business, said:

"This is the first I have heard about it. It may be true, but if it were, I think it very likely that the treasurer of the concern would know about it. The fact is that we have had talks—perhaps you might call them negotiations—with several parties as to the sale of the plant, but up to date nothing has come of them, and we now have no intimation that there will."

Mr. Hardy would not state who the parties were who had talked of buying the plant, but intimated that they wanted it for other purposes than the manufacture of rubber goods.

The New Rubber Mill at Birmingham.

THE Rubber Reclaiming Co.'s new mill at Birmingham, Conn., to replace the one burned in September last, is ready for operation. It is equipped with machinery of the highest standard and has twice the capacity of the old mill. Good track facilities on the railroad add convenience to the handling of fuel, the receipt of raw material and the shipment of the products of the mill. With the completion of this mill the Rubber Reclaiming Co.'s plant is once more complete, the other mills being at Trenton, Philadelphia, Lambertville (N. J.) and Jersey City.

The disposition of these mills is such as to supply economically different sections of territory. Two of them are practically open to transportation of material and product by sea with freight charges of a most reasonable character. The company now have agencies in England, France and Germany, and they report that a large export business has been nurtured within a short time. At the Jersey City mill many improvements in the way of machinery have been made of late and side-track facilities with the Erie Railway have been added.

A New Factory for Druggists' Sundries.

IN addition to their large plant for the manufacture of mechanical goods and clothing the Cleveland (Ohio) Rubber Co. have just erected a fine building for druggists' sundries work especially. It is three stories in height, the floors being 150 by 42 feet in dimension. The first floor will be devoted to mold-work and will have a line of ten large double-platen hydraulic presses which will extend the length of the room. In a wing adjoining this room will be set a number of large steam vulcanizers for curing rubber tubing, water bottles, bulbs, etc. There will also be on the same floor a department for the manufacture of rubber wringer-rolls which go into wringing-machines manufactured by a concern which is owned by the Cleveland Rubber Co. On the second floor will be set a line of tubing-machines from which all kinds of seamless tubing will be made, and it is in this room also that the rubber gaskets and jar-rings will be made. On the third floor is a light and beautiful apartment devoted to the making up of water-bottles, bulbs, fountain syringes, teething-rings and so forth. Above this is a room with walls and roof of glass which is used as a bleachery. A feature of this factory will be that the washing, mixing and calendering of the stock will be done in a separate building in what is known as Mill-Room No. 2, which is kept wonderfully light and clean and away from the dust and dirt incident to the manufacture of mechanical rubber goods. This new factory is very solidly built, the rooms are high studded with just as much light as the great nine-foot windows can let in and fitted with all of the modern conveniences in the way of elevators, steam heat, electric lights, Clapp automatic sprinklers and so forth. No expense has been spared in fitting this out, and President McClymonds says that he intends to have it the model druggists'-sundries factory of the world.

The New Plant of the Tyer Rubber Co.

AFTER a great deal of remodelling and building the Tyer Rubber Co., of Andover, Mass., are at last nicely settled in their new plant. With the extra room and the modern conveniences the company can now double their product and are enabled to fill orders very much more satisfactorily than in the past. The additions include a new boiler and engine-room, with added steam and motive power, a remodelled grinding-room with a new calender, new making-up departments for various kinds of druggists' and stationers' rubber goods and elegant new offices for president, treasurer and clerks. As all of the shipping is done from the factory a very commodious store-room and packing-room has been added to the plant and a force of skilled shippers employed to run it. At the rear of the plant is one building which is devoted to mold-work where is set a long line of steam-presses. The entire plant is fitted with elevators, electric lights, steam heat and all modern conveniences.

The Snow-Excluder Patents Invalid.

THE so-called snow-excluder patents—No. 131,201, dated September 10, 1872, for an improved cloth and rubber-gaiter overshoe, and No. 166,669, dated August 10, 1875, for an improvement in rubber boots, of which Isaac Williams is the owner and the National India-Rubber Co. the exclusive licensee, have been decided invalid by Judge Shipman of the United States Circuit Court for Connecticut. It was the opinion of the court that, since bellows flaps were already a known and existing thing in leather, the idea of placing the Williams bellows flaps on a cloth and rubber brogan was not one that rose to the dignity of invention. Hence the suit for infringement against the Goodyear Metallic Rubber Shoe Co. falls. The court, admitted, however, that its decision might have been different but for the recent attitude of the Supreme Court confining patentability within narrower limits than formerly. In view of this doubt, the plaintiffs will appeal the case to the higher court, the new court of appeals, hoping to get a decision this spring sustaining the patents.

Improved Method of Steam-Heating.

AS a result of sending eighteen of their Vacuum Exhaust Steam Economizers to Antwerp, the house of Warren Webster & Co., No. 491 North Third street, Philadelphia, has sold all its foreign patents, covering the manufacture in Great Britain, Germany, France, Belgium and Austria. The main advantage of this method of steam-heating, known as the Williames Vacuum System, of which Warren Webster & Co. are the sole licensees, lies in the fact that it heats buildings without back pressure upon engines and increases the efficiency of the heating surface. A guarantee is given that the Economizer will heat the feed water to the highest temperature with a minimum quantity of exhaust steam and the greatest relief of back pressure. The manufacturers furnish a descriptive catalogue and send representatives to any part of the United States at their own expense to examine plants and explain the advantages of their system. They have been in receipt recently of orders from the Windsor Folding Bed Co. of Chicago; the Joliet (Ill.) Enterprise Co.; the penitentiary at Raleigh, the Cooper Hospital at Camden, the Elba Iron Co. of Pittsburgh; the Baltimore and Potomac Railroad station at Washington, and numerous other important firms and institutions.

The Trade in Dress-Shields.

IT is estimated that the production of rubber dress-shields for the demand in the United States alone is about 5,000,000 pairs yearly. They are made here so well that large quantities of them are exported to Canada and foreign countries generally, except that the women of tropical countries do not seem to demand them so generally as their sisters living nearer the poles. The domestic trade in these goods begins in March, continuing until October, though the manufacturers as a rule are busy about every day in the year, providing a surplus to meet the summer demand, and also the export business, which varies but little with the seasons. Shields are in different styles and are still made of other material, such as oiled silk, but when made of rubber nothing but the best Pará is used, and a very dainty article is a result of the latest methods and machinery.

Depression in the German Rubber Industry.

A RECENT issue of *Kuhlow's* (Berlin) contains some information concerning the North German India Rubber and Gutta Percha Factory, formerly Fourobert & Reiman, Joint Stock Company. The president in his report makes the following statement: "During the past year we have been struggling under the most unfavorable conditions, under which however almost every other branch of industry has suffered; but this was especially felt in our undertaking, and although the most strenuous efforts have been put forward, it has only been possible to make very small advance upon the preceding year. Through the continued high price of the raw India-rubber and the neces-

sary expense attached thereto, the returns for the year have been considerably influenced. In the month of August of the past year there was a sudden fall in the price of the raw article, since fortunately the syndicate consisting of the English and Brazilian speculators could no longer be maintained. The reserve fund has already reached the sum of 165,205 marks, which is 7705 marks in excess of the amount actually required. It has been decided to declare a dividend of 3 per cent. This, although not as high as it might have been, yet assures to the shareholders a fair return for the money invested."

The Pará Rubber Movement.

THE statement in the accompanying table of the exports of rubber from Pará and Manáos during 1891, giving details of shipments by different firms and to different countries, has been furnished to THE INDIA RUBBER WORLD by Messrs. Reimers & Meyer, successors to Charles Lowenthal & Co., New York and Boston:

Exports of India Rubber from Para and Manáos

DURING THE YEAR 1891.

EXPORTERS.	PARÁ. TO EUROPE.	PARÁ. TO UNITED STATES.	MANÁOS. TO EUROPE.	MANÁOS. TO UNITED STATES.	TOTAL EXPORTED.	Stock on 31 Dec., 1891.	GRAND TOTAL.
	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.
PUSINELLI, PRUSSE & CO.							
Representing { CHS. LOWENTHAL & CO., Office 81 WILLIAM ST., New York and Boston. REILHUT, STRONG & CO., London and Liverpool.	2,497,089	2,890,900	1,412,324	617,775	7 081,073	725,110	8,706,183
COMPANHIA INDUSTRIAL DO GRÃO-PARÁ, COMPANHIA MERCANTIL DO PARÁ, J. VIANNA & CO. and BARROS & VIANNA,	2,333,630	2,555,328	——	994,060	5,991,319	——	5,991,319
LA ROCQUE, DA COSTA & CO.	1,000,049	3,373,550	——	——	5,061,899	995,000	6,056,670
NORTON & CO.	332,967	4,990,645	——	——	5,323,602	105,350	5,331,062
SINGLEHURST, BROCKLEHURST & CO.	469,841	929,378	885,140	722,310	3,002,669	295,330	3,298,005
R. F. SEARS & CO.	191,313	1,935,560	——	——	2,026,773	5,016	5,065,589
J. H. ANDRESEN,	——	——	770,763	645,177	1,415,942	160,892	1,576,834
D. CROUAN & CO.	1,168,885	72,516	——	——	1,241,351	158,649	1,248,450
RUD. ZIETZ,	818,094	82,477	——	——	900,571	198,893	774,913
KAHN, POLACK & CO.	——	——	803,447	1,576	805,023	41,276	845,299
W. BRAMBEER & CO.	174,579	132,180	——	——	306,759	——	306,759
FREITAS, SOBRINHO & CO.	——	——	59,944	181,816	239,661	41,278	282,938
B. A. ANTUNES & CO.	——	——	85,459	259,297	345,646	8,818	354,465
G. POTEY, RABERT & CO.	——	——	64,857	115,190	179,886	66,120	245,966
LUIZ SCHILL & SOBRINHO,	——	——	197,794	17,017	215,011	——	215,811
A. BERNEAUD & CO.	——	——	——	33,127	33,127	29,663	62,770
SUNDRY SMALL SHIPPERS,	807,758	661,016	1,055,649	292,199	2,907,970	295,774	3,203,694
FROM SERPA,	——	——	33,948	1,890	35,843	——	35,843
STOCK IN FIRST HANDS,	——	——	——	——	——	329,933	329,933
	10,472,788	19,018,931	4,561,385	3,855,739	33,307,847	3,159,189	42,307,036

RECAPITULATION OF EXPORTS.

YEAR.	TO EUROPE.	TO UNITED STATES.	TOTAL EXPORTED.	Stock on the 31 Dec.
	lbs.	lbs.	lbs.	lbs.
1891,	15,388,187	23,872,660	39,207,847	3,159,189
1890,	13,004,653	21,137,177	36,141,830	3,165,835
1889,	14,946,888	20,004,606	34,810,594	2,669,000
1888,	13,477,178	18,047,891	32,024,766	2,285,000
1887,	12,227,409	16,761,296	30,988,704	2,206,690
1886,	11,078,720	17,834,172	28,613,903	2,209,792

London Vans With Rubber Tires.

AN electrical parcels-delivery van constructed by the London Electrical Carriage Co. is a compactly-designed vehicle upon four rubber-tired wheels, and is driven from a seat similar to that of an ordinary van. Switches are used to set the motor in operation and to apply the brake, while a vertical wheel and endless worm are revolved to change the inclination of the front axle and thereby the direction in which the vehicle travels. The motor is worked by accumulators of sufficient power to run from two to two and a half hours at a time and at the rate of six miles an hour. It is claimed that the use of electricity over horse power will show an economy as compared with horse traction, and the company will immediately put the van to exhaustive experiments upon the London streets as a parcels cart. It will carry about half a ton of goods.

Disastrous Effects of Cutting Prices.

THE failure of the Massachusetts Rubber Co. has created not a little discussion among manufacturers as to what in the long run is a short-sighted policy in the general rubber trade. "That company started with apparently a good capital, and established at once a credit with the trade," said a manufacturer to a reporter for this journal. "In order to quickly build up a large volume of business, they at once established a line of prices which the conservative competitor was loath to follow, and as a rule did not. That they were not remunerative is on the surface proven by the result. Those manufacturers who lost trade by the innovation of low prices now point to the soundness of their views, and are apt to look upon the parties, who favored the new company with a substantial line of credit, as unconsciously aiding in the result, besides weakening every party in the business. Parties selling to a company on time large amounts of material when it is a known fact that they are placing upon the market goods at unremunerative prices are inviting losses in the end to themselves, and at the same time honeycombing the trade with seeds of demoralization which in turn and time would be serious to all that is in it. On the contrary, if manufacturers would more carefully scan credits, and watch the course of those whom they favor in this respect, they would sell as many goods, and also would in the end avoid mortifying losses. The feeling among the substantial portion of the trade is a deep seated one that all the failures of last year, a remarkable one in this respect in the annals of the rubber business, carry a moral with them, which all would do well to study closely."

Imitation Rubber Horse-Shoe.

VARIOUS kinds of rubber horse-shoes have been from time to time put upon the market and with varying degrees of success. A shoe that has all the elasticity that a rubber shoe would naturally have, and that is said to be exceedingly durable, is now used abroad and is made from compressed cow-hide It is composed of three thicknesses of cow-skin pressed in a steel die and then treated chemically. It is said that it lasts longer and is lighter than a steel or iron shoe and never splits the hoofs. It is also claimed that it adheres to the polished surface just as well as a rubber shoe would and that its elasticity overcomes the jar from the hoof striking city pavements.

ANY druggist who wishes to cut a rubber stopper is advised to dip the cutting instrument into water first, or, if it goes hard, into potash or soda lye.

NEW GOODS IN THE MARKET.

EARLY last season THE INDIA RUBBER WORLD published a description of the Vaseline atomizer shown in Figure 1. It has since become so popular and has been the means of stimulating invention in the line of oil atomizers to such an extent that it is republished as an introduction to the series that follows. This was gotten up as a simple, moderate-cost, popular atomizer, designed for warming and spraying pure vaseline, either plain or medicated, and for the treatment of nasal catarrh, hay fever, asthma, bronchitis, and other diseases of the respiratory organs. This seemed to fill the need and at once became exceedingly popular, and large quantities of them were sold all over the country. Physicians used it successfully with many combinations of vaseline, such as camphor, carbolic acid, iodoform, hamemelis, etc. This atomizer developed many strong points in practice. It proved not to be easily broken, it could be filled quickly owing to the large-sized mouth of the vial, it could be cleaned easily, as the vial is detachable from the tube, and if any part was broken or out of order it could be replaced very quickly and cheaply. There was, however, a call for an instrument that should have a somewhat wider range. In other words, one that, while held in an upright position, could throw the spray in any desired direction. For this purpose a second vaseline atomizer was invented and is well represented in Figure 2. This has a long metal tube extending from the bottle that holds the liquid. At the end of the tube is a tip that can be moved in almost any direction and will throw a spray up or down or in any way that may be desired. This is used for pure vaseline and solid ointments, or liquids. When the oleaginous ointments are solid the glass and metal parts should be dipped in hot water or warmed by carefully waving through a gas flame. To operate it the bulb should be compressed vigorously, when the spray will at once issue. To medicate the throat, bronchial tube and lungs the tube is adjusted for a downward spray and inserted in the mouth until it touches the throat just above the palate. If the bulb is then compressed while a deep breath is taken the lungs will be filled with the fine spray, some of which will reappear with the exhalations. To medicate the pharynx and the back part of the nostrils over the throat turn the tubes for an upward spray, insert as before directed, and compress the bulb two or three times. The manner of medicating the front nostrils will need no explanation. After use it is wise to clear the atomizing tubes by removing the vial, warming the tubes and compressing the bulb forcibly. The third form of oil atomizer manufactured by the same house that makes the two preceding is known as a vaporizing or nebulizing apparatus, illustrated in Figure 3. In this an oleaginous liquid is broken into a fine cloud by striking first against a hard surface and is then atomized when it issues as a fine cloud, which will float a long time upon the atmosphere without being absorbed into it. Possessed of this quality it is admirably adapted to be received by the air cells of the lungs, into which it surely penetrates. This atomizer is purchased usually by physicians who will use it in their practice. It has received the endorsements of some of the wisest practitioners in the country and so strongly has it appealed to them that many fine recipes have been written out by successful physicians to be used with this instrument. In cases of catarrhal pneumonia, phthisis, bronchitis and nasal catarrh it has effected some remarkable cures and has always proved itself a healing medium. These atomizers are manufactured by Codman & Shurtleff, No. 13 Tremont street, Boston, Mass.

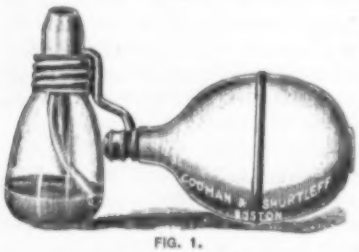


FIG. 1.

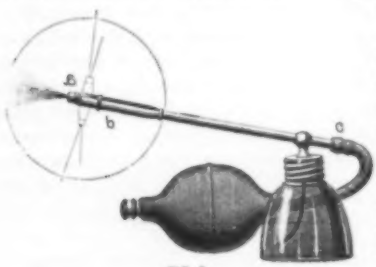


FIG. 2.

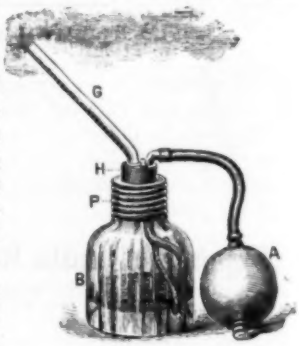


FIG. 3.

* * *

THE Lowell Vaseline Atomizer is still another instrument for spraying oleaginous liquids. It is put on the market by an old-established house favorably known to physicians and druggists the country over. Figure 4 shows only the metal and glass parts of the atomizer, the bulb being absent. It will be seen, however, that the instrument is exceedingly simple in construction and so arranged that the heavy oily fluids can easily be warmed and rendered fit for spraying. Indeed in the directions for use the advice is given that the glass part be held by means of the metal holder over a lamp or in hot water and enough vaseline or medicated ointment of any kind put into it to half fill it. After replacing the cork the heating may be continued until the contents are thoroughly liquified. The tubes in this case are entirely of glass, and it is claimed that they have a certain advantage over other kinds in that they are not affected by rust, corrosion or acids, and may be easily or quickly cleansed in hot water. The jars are made of blown glass and are not liable to break or crack as are pressed or molded bottles. A variety of tubes bent in different directions and fitted to be used with large air-receivers are made and can be purchased with the atomizer if desired. Manufactured by Leach & Greene, Boston, Mass.

FIG. 4.

* * *

THE atomizer was primarily intended for the spraying of per-

fumes and was largely used for that before it occurred to the medical profession that it could be of any special service to them. To-day it not only has its place on many toilet tables, but it is to be found in the sick room and in the hospitals all over the land. Having been adopted by the medical profession it has been adapted to the spraying of many kinds of medicaments and a variety of disinfectants. For nasal and throat troubles it has been found that healing oils of various kinds sprayed into the throat or the passages back of the nostrils have proved of great advantage. The knowledge of this fact resulted in the invention of the oil atomizer. The one shown in Figure 5 is adapted for atomizing cosmolene, lobelene, glycerine, and various oily liquids. It is so constructed that the liquid is forced into a chamber situated above a delivery tube, thus assisting its flow to the spray cap. Pressure upon the bulb results in a fine spray, which ceases immediately when the pressure is removed. This, therefore, is under full control, and there is no danger of soiling the clothing or face when it is in use. The tube through which the spray is sent is about four inches long. The bulb and rubber tube are made of the best of stock. Manufactured by the Davidson Rubber Co., Boston, Mass.

FIG. 5.

* * *

HERETOFORE water has been the principal solvent for medicaments which were to be applied to the mucous membrane of the nose and throat. Now while water is the best means of cleansing the outer surface of the body, it is not the best thing to apply to the mucous membrane of the nose, as the membrane can and does absorb a considerable quantity of it and thereby puts the patient just in a condition to catch cold again. Vaseline spray is more thoroughly cleansing than water and at the same time protects the membrane from the air and prevents new colds. It is absolutely necessary, however, to have the proper form of atomizer to make the application. The Aloe form, as shown in Figure 6, is readily introduced into the nose without discomfort. The glass part or body is held over a flame to melt the vaseline, for even though the liquid vaseline be used it is advisable to heat the solution from the fact that the originators of this method of treatment claim the beneficial effects are derived from a warm spray. Aloe's Ointment Atomizer is produced for this specific purpose, can be easily cleansed and is convenient, practical and cheap. Manufactured by A. S. Aloe & Co., St. Louis, Mo.

FIG. 6.

* * *

THE invitation that THE INDIA RUBBER WORLD issued recently for illustrations and descriptions of new goods in the line of druggists' sundries has developed the fact that the vaseline atomizer has come to stay, and in a variety of excellent shapes. A simple form and one that has many advocates is shown in the picture of the "Acme" (Figure 7). This, like others mentioned on this page, is adapted to spraying vaseline, benzoinal, albolene and other menstrua, and does it efficiently. A further use for it is in atomizing mercurial preparations for local application to the throat and nasal cavities in syphilitic treatment. This is very simple, consisting of a rubber bulb, the spraying pipe and a glass atomizing chamber. Manufactured by the Holekamp, Grady & Moore Instrument Co., St. Louis, Mo.

FIG. 7.

Perfection Hose-Pipes.

THE illustrations in connection with this paragraph give a correct idea of the Perfection Hose-Pipe, which delivers a straight stream or spray, as may be desired, by turning the milled section on its leather bearing. This pipe is preferable to some others, as the water-joint is made on a flat leather disk or washer between the two sections, thus doing away with leaky stuffing boxes or plugs. Should the bearing leak when in use it can be remedied instantly by turning with a screw-driver the screw inside the pipe, thus drawing the bearings tighter together, whereas other pipes require a skilled workman to repair them. For delivering a straight stream it conforms nearer to the best form known for preserving the solidity of the stream and projecting it to the greatest distance, it is claimed, than any other on the market. Its great simplicity and straight lines make this possible. Manufactured by King & Goddard, No. 66 Pearl street, Boston, Mass.

SPRINKLER.

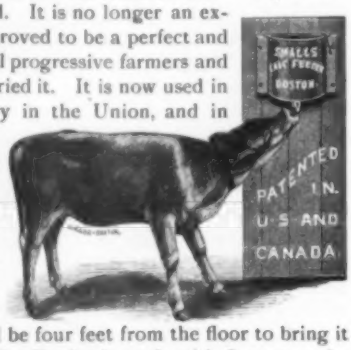
STRAIGHT STREAM.

A Rubber Watch-Protector.

A SIMPLE thing, but most efficacious, is the Watch-Protector sold by Samuel C. Watts, Goodyear Rubber Cleaner Co., No. 2197 Third avenue, New York. It consists of a rubber ring with a serrated edge fitting over the stem of the watch. In action it is very simple. Should a thief pull on the watch chain, the rubber ring catches in the corner or edge of the pocket, and its elasticity is about all that is gained on the first pull. The watch does not come without another and extraordinary effort, which the thief does not undertake. It costs only 10 cents, does not disfigure the watch, as it is neatly made of red rubber, and is as good as an insurance policy on the timekeeper.

Nursing-Bottles for Calves and Lambs.

THIS new article of manufacture was designed and has been perfected by the inventor for feeding milk to young calves in a natural way before they are old enough to eat and drink otherwise, and is to the calf what the nursing-bottle is to the baby, a substitute for nature. Since its introduction nearly 12,000 have been made and sold. It is no longer an experiment; but has been proved to be a perfect and much-needed article by all progressive farmers and stock-raisers who have tried it. It is now used in every State and Territory in the Union, and in several foreign countries.



Two cleats to hold the Feeder while in use, provided with guideways on their inner edges, are screwed permanently to the side of the stall (or any suitable support), the top ends of which should be four feet from the floor to bring it at the desired height. The Feeder is made with flanges on its outer edges, which are provided with a stop at their tops and when the Feeder is slipped down between the cleats into the guideways, it is held firmly in position, and then hooked, as shown in the cut, and is ready for use. It should be removed from the cleats as soon as the calf is through feeding to prevent wear of the nipple, which is made of the best quality of heavy rubber, and is provided with a taper-shaped metal thimble and a combination of valves which go inside the nipple so that it does not leak, and can be milked as perfectly as a live cow. The nipple, together with thimble inside, is slipped down through the Feeder into the taper-shaped nozzle and pulled to place, and then locked by a spring, so that it cannot be backed out until the spring is removed. It is thoroughly made for service, and sold at a price so reasonable as to bring it within reach of all. It holds seven quarts and weighs less than four pounds, and can be sent complete by mail. Its chief merits are not only in its convenience, but in the sleek, thrifty, healthy calves it produces, as they suck their food naturally in a natural way, producing the gastric juices as in nature and the calf is never stunted or set back as they are when taught to drink, but grow rapidly from the time they are put on the Feeder. The lamb-feeder is made on exactly the same principles as the calf-feeder, but both feeder and rubber nipple are much smaller. It is well illustrated in the second illustration. Manufactured by J. B. Small & Co., No. 26 Merchants' Row, Boston, Mass.

Removable Covering for Hot-Water Bottles.

NOW that the hot-water bottle has come to be a household necessity and its sale has increased so wonderfully, manufacturers are striving more and more not only to make the best but to make the handsomest goods in this line. An addition to the water-bottle that is both useful and ornamental is the Removable Covering shown in the illustrations herewith. These covers are made of either "Eider Down" or flannel and are simply soft fleecy pouches that slip over the rubber bag and are artistically tied about its neck. They help to retain the heat, produce no disagreeable sensations when in contact with the feet, and give out an even, agreeable warmth. The Foster bag, when used with this covering, may be so placed in the bed that the entire sole of the foot may rest against it, which is an added comfort. This is easily accomplished by placing the water-bottle against the foot of the bed, when it assumes a half upright position instead of the flatness that the ordinary bag develops. Manufactured by The Rubber Specialty Manufacturing Co., No. 16 Murray street, New York.

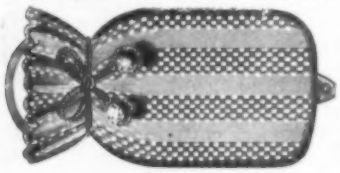


FIG. 1.

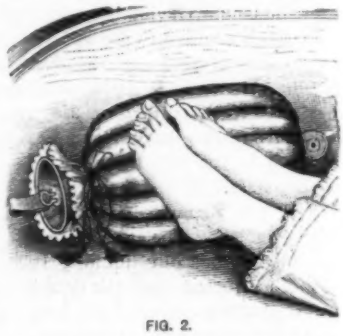
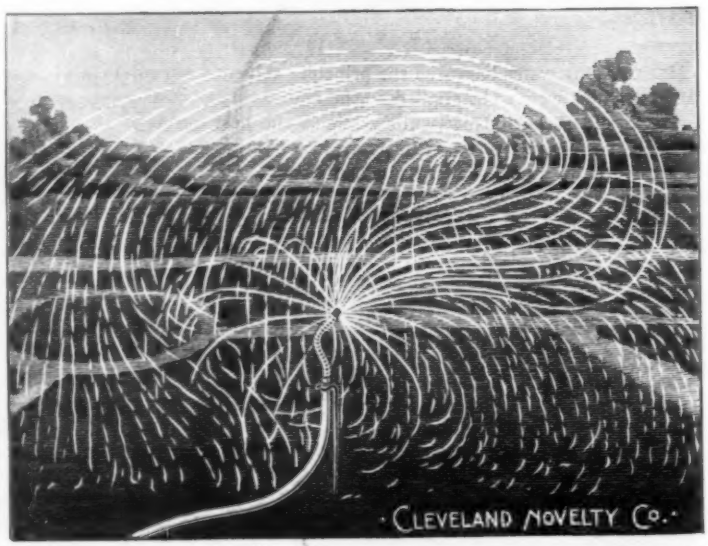


FIG. 2.

The "Serpent" Sprinkler and Fountain.

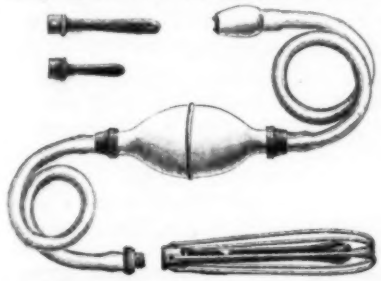
AN entirely new departure in revolving sprinklers for lawn purposes is known as the "Serpent" sprinkler and fountain. It is the invention of a young man in Cleveland, Ohio, who has put upon the market many popular novelties, and is so radically different from any other that no one can accuse him of being an imitator. The sprinkler is simply a tube of rubber wound with spring brass wire nickel-plated. The passage of the water through the tube causes it to revolve with a serpentine motion that throws the water in eccentric curves that are singularly beautiful. It is claimed that at least one-half more surface can be watered by it than with the ordinary revolving sprinkler. A moderate pressure of water throws the spray over a surface the outer boundary of which is a perfect circle. If, however, full head of water be sent through the hose the serpentine pipe throws the spray backward and forward covering an oblong space. This is the only sprinkler that can do this, and as

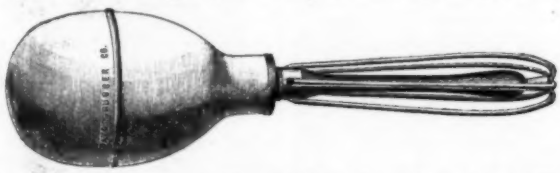


many lawns are rectangles rather than squares, this will be seen at once to be an advantage. A simple metal standard is sold with the sprinkler, which when set in the turf holds the free end of the sprinkler still, and transforms it into an ordinary rigid fountain. The whole apparatus is so constructed that there is no wear, nor is there friction in any of the parts; hence with ordinary care they will last a lifetime. Manufactured by the Cleveland (Ohio) Novelty Co. The Ross & Fuller Association, No. 33 Chambers street, New York, are agents.

New Departure in Rubber Syringes.

IN the collection of pipes that usually accompanies a syringe, either bulb or fountain, is to be found one unwieldy hard-rubber pipe that is known as the "irrigator." It is the testimony of many medical authorities that few of these are of any practical use, as they are so shaped that they fail to achieve the desired result. A new departure is made, however, in what is known as the Gem, which is well shown in the accompanying illustrations. It will be seen that the hard-rubber pipe through which the water for cleansing purposes is forced is surrounded by a series of metal guards which do not allow it to come in contact with anything that would hinder the flow of the water. This irrigator is so arranged that it may be attached to the house-





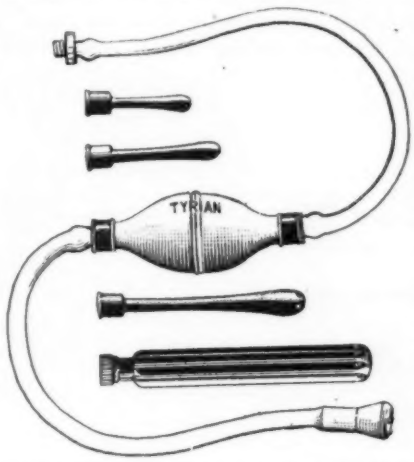
hold syringe or to any ordinary bulb or fountain syringe. The second cut in this connection shows the irrigator attached to a six-ounce bulb syringe all ready for the simplest form of use. Manufactured by the Davol Rubber Co., Providence, R. I.

The "Cross Stitch" Sewed Belt.

THE latest improvement in rubber belting is the new sewed belt, for which is claimed all the advantages of preceding styles, without the defects belonging to some. It has no seams to open, to begin with. The strength of the belt does not depend entirely upon the friction, but plies of duck are held together by threads, which render it impossible to tear apart. The special claims on which the patents are held is that the threads on the side away from the pulley do not run longitudinally with the belt, but lie across the belt. Therefore the outside threads are not called upon to take all the strain, and do not break or weaken the belt by cutting into the duck. The thicker the belt the more marked is this improvement. Manufactured by the Boston Woven Hose and Rubber Co., No. 275 Devonshire street, Boston, Mass.

Tyrian No. 19 Syringe.

THE Tyrian Syringes are pretty well known the country over to-day. Of them all perhaps what is known as No. 19 is perhaps as popular as any. In this article the soft-rubber parts are made of a white rubber in the manufacture of which the Tyer Co., are the pioneers, the original patent for white zinc rubber having been granted to Henry G. Tyer, the founder of the business. The fittings are of hard rubber, while the sinker is made of soft rubber. It has two hard-rubber valves and is packed in a neat wooden box. Manufactured by the Tyer Rubber Co., Andover, Mass.



A New Rubber Corset-Shield.

IN the peculiarities of feminine dress and belongings nothing perhaps is more trying to the equanimity of the temper than to make a sudden movement and break at the waist-line the bones or stays of the corset. No corset seems to be proof against this annoyance, which is caused by the soft yielding part of the body, between the lower rib and the hip, offering no resistance when an impulsive movement in bending or stooping crowds the side of the corset in at the waist-line, making the break as mentioned. When this happens, besides the continued annoyance afterward, and the great difficulty in repairing, there is the hardly-concealed wrinkling in the fit of the dress, which detracts from the grace of the figure. Eugene Pearl, the artist, who has introduced several clever inventions, has recently patented what he terms "The Pearl Corset Shield." This device is in the form of an oval shield, thin and strong, made from stockinet and rubber. This material serves as a covering for a metallic frame of considerable resistance, with elasticity sufficient to form the double curve necessary at the waist, without wrinkling. When attached with a few stitches to the waist-line of the corset, it not only prevents the breaking of the stays but preserves its original shape. It can be applied after the sides have become broken, when it restores the curve and protects the body from injury. It is an invention of great merit. The ladies have adopted it at once as an article indispensable to their wardrobe, and the retail trade throughout the country have given it instant recognition as a leading notion-counter specialty. The Mattson Rubber Co., of New York, are sole manufacturers for Mr. Pearl in this country. They have

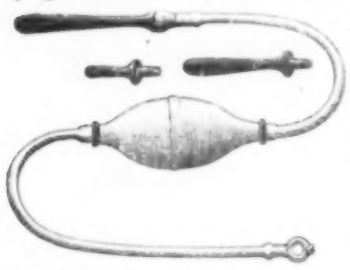
an entire floor fitted with special machinery adapted to the purpose, and are producing this new article in large quantities. It is being placed upon the market by Levi Brothers & Blum, Nos. 121–123 Green street, New York, who are the sole selling agents. It retails at 25 cents a pair.

A Handsome Imported Bulb Syringe.

RUBBER-MEN are continually looking for handsome colors, though unfortunately rarely finding them, and this is particularly true of the manufacturers of rubber druggists' sundries. Beautiful colors in bulbs and tubing are especially hard to get, at least for the average American manufacturer, and this perhaps is why some of the most progressive of them are looking abroad for goods of this class. European makers have long made a specialty of fine colors and turn out some elegant goods. The syringe known as the Germanic is a good example of the best work done in Europe. In this the bulb is a handsome red and is entirely free from the troublesome "bloom" or efflorescence of sulphur that injures the looks of so many colored rubber articles. The fittings are of finely polished hard rubber and have slip socket fastenings. The valves are situated, the one in the sinker and the other at the extreme end of the tube. It is said that it is almost an impossibility for this syringe to get out of order, an advantage that purchasers will not be slow to appreciate. It is put up in a neat wooden box and is imported expressly for the Tyer Rubber Co., Andover, Mass.

The Ideal Bulb Syringe.

IT takes a great deal of ingenuity in these days to add any new features to a bulb syringe. That shown in the accompanying illustration, however, has new features and good ones. One that will instantly strike the observer is the form of the soft rubber sinker. It is a ring of rubber so made that the syringe may be hung up on a nail. One side of the ring is hollow and it is through this that the liquid flows when the syringe is in use. This feature is now a part of all the syringes that bear the name "Ideal." The goods are made either in white or slate color, have hard-rubber connections, as many pipes as may be desired, and are put up in wood or paper boxes. Manufactured by the Ideal Rubber Co., Brooklyn, N. Y.

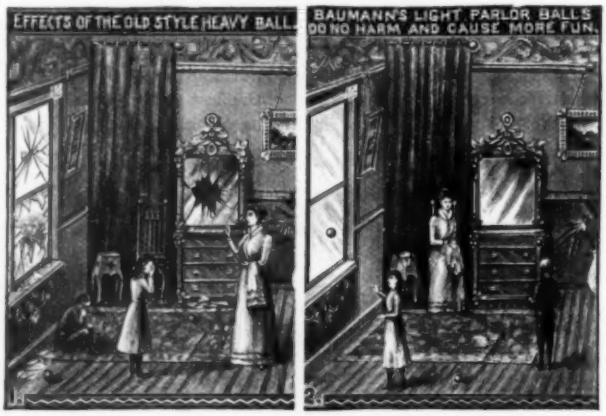


The Acme Paper-Fastener.

IT would seem at first thought that so simple a thing as a paper-fastener would not be susceptible of improvement. At the same time all of the styles heretofore marketed have developed faults. One type fastens manuscripts very nicely but constantly catching on other papers. Another tears out when the slightest strain is put upon it. All heretofore made require a punch or a knife-blade to make an opening for its insertion. The Acme, however, is radically different from all others in that it easily penetrates any number of sheets of manuscripts. Folding one upon itself it holds the sheets firmly together and there are no exposed points to interfere with anything else. The fastener is made in one piece of sheet brass and is put up in boxes containing one hundred each. The patent is owned by two gentlemen well known to the rubber trade, Mr. J. O. Stokes, Treasurer of the Home Rubber Co., and Mr. S. F. Randolph, President of the Commonwealth Rubber Co. A factory is in process of erection in Trenton, N. J., and the machinery is already purchased for the manufacture of this and other specialties and novelties in brass.

Velvet Rubber Balls.

THE old-fashioned solid rubber ball is a thing of the past. It broke windows, hurt the children and was accounted generally dangerous. One reason that it has been laid on the shelf is because it has been thoroughly superseded by something a great deal better. A rubber ball made of a thin film of brightly-colored rubber filled full of air, light, elastic, lively, with no faculty for doing damage is the ball of to-day. Thrown with all one's force against a window pane it bounds harmlessly back. These balls are known as Velvet Rubber Balls, and the name is a good one for it describes them exactly. They are of a beautiful vermillion shade and are made of the best rubber obtainable. They are made in eleven sizes, running from three to eight inches in diameter. Manufactured by M. Bauman & Co., New Haven, Conn.



HARD-RUBBER balls for use in bowling alleys are little known but have been used with good success. The surface is of hard rubber with combination filling. They are expensive and for ordinary use are no better than lignum vitae. In other words the ordinary flooring of an alley does not call for a high order of ball. The science of bowling has within the past few years received a decided impetus among the youth of the country, and the growing tastes of the wealthy class are calling for a better standard of alley. It is now proposed to build up-town in New York city, an alley of slate, and on this hard-rubber balls will be used. One can almost imagine he was in dreamland or if he be not ethereal, on a greased slide, when he can send a highly polished rubber ball down the smooth-plated surface of a bowling-alley perfect in its level towards a goal bringing results entirely dependent and without variation upon his skill.

TRADE AND PERSONAL NOTES.

MR. L. D. APSLEY has purchased the interest of his partner, Mr. J. H. Coffin, in the Goodyear Gossamer Co., at Hudson, Mass., the event being one of much importance in the commercial history of that town. Rumor has it that a cash transaction of more than $100,000 was involved. The development of the business of this concern has been rather remarkable. Its extensive manufacturing plant and its trade, extending into nearly every State in the Union, having been built up in a little more than six years. Mr. Apsley, who now becomes sole owner of the concern, is well known to the rubber-goods trade, having been not only head of the firm which has just been dissolved, but also President of the Gossamer Manufacturers' Association, including all the manufacturers of goods of this class in the United States. Mr. Apsley is President of the Hudson Board of Trade, a Director in the Hudson National Bank, President of the Woodward Manufacturing Co., and a Director in the Hudson Real Estate Co., and is known as an earnest advocate of whatever tends to the growth and prosperity of the town. The leading employés of the company, it is understood, will retain their positions, including Charles F. Hamilton, Henry C. Norton, S. J. Emerson and E. Frank Boyce, salesmen. It is stated that this year's business, up to the present time, has far exceeded that of any other year for the same months.

—The new store of the Globe Rubber Works at No. 49 Federal street, Boston, is an exceedingly pleasant and commodious apartment. The room is 75x40 feet, with five large windows in the rear and four equally large ones in the front. The offices of Mr. Henry F. Knowles and his helpers are in front facing on Federal street. The stock of rubber goods carried there is large, amounting to about $20,000. This is all for wholesale trade, as Mr. Knowles absolutely refuses to sell at retail.

—Mr. C. A. Hayward, brother of the treasurer of the Cable Rubber Co., has a very fine rubber store in Providence, R. I. Taking in his whole line of mechanical and general rubber goods, he probably has the largest stock for a retail store in New England.

—Mr. P. L. Ryder, who owns a rubber store in Worcester, Mass., has moved his stock to the Lincoln House Block, and has now the largest rubber store in the city.

—Prof. Babcock, of Boston, thus indorses the American Golden Sulphuret of Antimony: "So far as I know there is but one manufacturing establishment in the United States which produces a sulphide which comes up to the standard. This antimony is of constant and definite composition and produces uniform results. No doubt this is due to the fact that the managers of this company have a practical knowledge of the necessities of the rubber trade." The company thus complimented can be no other than the Atlas Chemical Co., of Newtonville, Mass., as they are the only manufacturers of the Golden Sulphuret of Antimony to-day in existence in the United States.

—Two rich deposits of asbestos are offered for sale by Clementé Queiroz, of Oporto, Portugal.

—At a recent fire in Pawtucket, R. I., it is claimed the cause was defective insulation—an excuse that Fire Boards are apt to render, but which has been proven many times to be erroneous.

—Ralph L. Shainwald, president of the Standard Paint Co., of New York, whose "ruberoid" or "ruberine" are becoming so popular among rubber-manufacturers, has gone to California for a month's vacation.

—It may interest manufacturers of plumbago packing to know that a valuable deposit of graphite has been struck just outside of the city limits of Providence, R. I. The mine is in what is known as Cranston, and the vein that is now uncovered is said to be ten feet wide and fifteen feet thick.

—The Eagle Pencil Co., of New York, who recently brought out a popular selling 25-cent fountain-pen, have made a remarkable success of it. A representative of THE INDIA RUBBER WORLD recently met one of their retail salesmen in Rochester, N. Y., who had sold 400 pens in the principal hotel there within a week.

—The New England Roller Grate Co., of No. 65 Federal street, Boston, have recently fitted out another large rubber-mill with their grates.

—The New England Butt Co., of Providence, R. I., whose braiders are in use in almost all insulated-wire plants, are sending numbers of machines to South America.

—F. Reddaway & Co., of No. 52 New street, New York, a firm new to this country, although well-known in England, have began the manufacture of mechanical rubber goods on this side of the Atlantic. Their mill is located at Paterson, N. J., and they are turning out fine grades of cotton and linen hose, both lined and unlined; mattings, treads, etc. The American members of the firm are John Macwatty, a well-known fire-hose salesman, and Hudson Dickerman, formerly with the Peerless Rubber Co.

—The "Perfection" Hose-Pipe, manufactured by King & Goddard, Boston, always has been popular, but the inventor put so high a price upon it as to interfere with its sale. Now, however, Messrs King & Goddard have acquired the whole of the business and have put down the prices, with gratifying result that the sale is increasing every day.

—The Lockwood Manufacturing Co., of East Boston, Mass., are doing a great deal of work for the Thomson-Houston Co. They are also taking large orders for mold and machine work from the prominent rubber manufacturers throughout New England. For this latter work they have probably the largest and best-equipped plant in the country.

—The Canfield Rubber Co. have purchased a new building, No. 73 Warren street, New York, and will occupy offices there after April 1. The structure is a modern office building fitted with electric lights, elevators, steam heat and all the conveniences of the day.

—C. H. Dale, sales agent of the Peerless Rubber Manufacturing Co., of New York, has added another title to those he has borne in the past. He is general agent for the Empire Car-Coupler Co.

—The Boston Rubber Shoe Co. have just issued their new price-list on tennis goods. The ventilated tennis-shoe will this year be even more popular than heretofore, because consumers are rapidly learning how much comfort and wear is to be found in it.

—George E. Green, of Brattleboro, Vt., is said to do the largest business in druggists' rubber goods in that city.

—C. E. Ball, one of the largest buyers of sundries in Massachusetts, has three stores in the city of Holyoke.

—A firm who send men all over the State of Connecticut and who have a well-established trade especially in sundries are T. Sisson & Co., of Hartford.

—The Chicago Insulated-wire Co. have begun the manufacture of weather-proof and other coated wires.

—The teams of Wells & Richardson, carrying all kinds of druggists' rubber goods, go all through the States of New Hampshire and Vermont. The headquarters of the firm are in Burlington, where they have a fine store.

—In the State of Maine it is the custom to send wagons stocked with various goods to the small retailers and to fill their orders on the spot. Colwell Sweet, of Bangor, probably sells as many rubber goods as any one in this manner.

—Mr. H. J. Yatman, for a number of years with the Riverside Rubber Works, at Belleville, N. J., has now a mill of his own. The new concern is called the Essex Rubber Co., and is situated on Railroad avenue, Newark, N. J. They are manufacturing stationery specialties in rubber and metal. Mr. Yatman is quite an inventor and knowing the business so thoroughly is bound to succeed.

—The Waterbury (Conn.) Rubber Co. are said to be doing a fine business in tubing, water-bottles and general sundries.

—An item of news that was crowded out of the February issue of this journal is that J. M. Plummer had opened an office at No. 19 Pearl street, Boston, and taken the agency of the Empire Rubber Co. and Trenton Oil-Cloth Works.

—It is reported that F. C. Goodell, of Lowell, Mass., has the best druggists' rubber trade in his section.

—Jaynes & Co., large druggists' sundries men, have three stores in Boston and one in Providence, R. I.

—The best house for the sale of druggists' rubber goods in Auburn, Me., is that of William A. Robinson. As a friend describes Mr. Robinson: "He is a pillar in the church and a pillar in Auburn business."

—The small drug-stores throughout the State of New Hampshire rely upon A. P. Fitch, of Concord, to keep them supplied.

—A pioneer in sundries and specialties is E. D. Buffington, of Worcester, Mass. He has a large store in that city and sends salesmen as far west as Denver, Col.

—The largest variety of druggists' rubber goods kept in stock in the city of Lawrence, Mass., is to be found in the old established store of H. M. Whitney.

—Albert H. Essex, well known to the druggists' sundries trade, lives in Fall River, Mass., where he keeps a stock of his rubber specialties.

—"An English house with American methods" is the description given of King & Co., of Kingston, Ont. By the way, they dispose of druggists' rubber goods it looks as if they could give a pointer to some American houses.

—The largest trade in rubber sundries among the French in upper Canada is given to the firm of M. Brunet & Co., of Quebec.

—Dr. J. A. Leduc, of Montreal, has just opened a fine store. His goods fill four floors, the second and third being devoted to druggists' sundries and surgical goods. It is said that he has the finest display of rubber goods to be found across the Canada line.

—Miss Jennie Hamilton has the trade in Bridgeport, Conn., both in rubber goods and in prescriptions, and is a well-known and shrewd buyer.

—The Garlock Packing Co., of Palmyra, N. Y., issue a neat little vest-pocket memorandum book which all appreciate, save and use. The covers and first two pages explain the merits of their packing, while Palmer Cox's "Brownies" in a very catchy picture show its application.

—The Western newspapers are chronicling the fact that Ripley & Bronson, the well-known rubber-men of St Louis, have just sold a six-ply elevator belt 36 inches wide and 800 feet long, and eight five-ply belts, 24 inches wide and 300 feet long. They are agents for the Chelsea Wire Fabric Rubber Co.

—Mr. Charles A. Clark, formerly manager of the B. S. Hale Co., of Malden, Mass., is handling the goods of the Crescent Insulated Wire Co., of Trenton, N. J., New England being his territory.

—The Corliss Engine Co., of Providence, R. I., are proud of the fact that the four great engines that drive the ponderous machinery at the works of the Boston Rubber Shoe Co. are of their build, and that they give perfect satisfaction.

—A mail trade in rubber goods is difficult to get, yet it is said that George C. Frye, of Portland, Me., sells more rubber goods in that way than many stores sell over their counters.

—Hudnut, who has a fashionable pharmacy on Broadway, New York, near Twenty-second street, has a beautiful array of imported atomizers. That is they are called imported, but the fact is they are made in this country, and they are beauties.

—Commercial men say that the Toledo (Ohio) Rubber Co. have one of the best-dressed show-windows they have seen. Their display of late has been fancy atomizers.

—The Eastern Electric Cable Co., of Boston, are running a night and day gang of men and still cannot fill all their detail orders.

—John W. Gray, of Hartford, Conn., is about to put in a new rubber calender.

—If one examines the rubber patents of the last year he cannot fail to be struck with the fact that the chief interest centers on the bicycle tire. The manufacture of tires is big business but the "boom" has only begun.

—Good men who know how to make pneumatic tires for bicycles are constantly in demand of late. They are mighty scarce however.

—The Bauman Rubber Co. of New Haven, Conn., manufacturers of parlor balls and specialties, have purchased a lot in Daggett street and intend soon to erect a building specially adapted for their work.

—His name is Playter and it costs $25 for a rubber-manufacturer to know him. His secret is the old one of combining glue and glycerine, which has been commented upon in THE INDIA RUBBER WORLD several times.

—Letters from France and Germany, and from different parts of the United States continue to come to THE INDIA RUBBER WORLD asking if there is not some American manufacturer of cut sheet. What a pity that the answer continues to be "No."

—One of the handsomest platens for a hydraulic press for rubber works ever cast is now at the Farrel Foundry at Ansonia, Conn. It is 74 inches wide and 25 feet long, and weighs thirteen tons. There isn't a pin-hole even in the whole casting.

—Now that the rubber men are becoming interested in Ramie fiber it may be timely to state that Mr. D. D. Spence, of the Almy Water Tube Boiler Co. of Providence, R. I., is an authority on the subject. Mr. Spence was for years known as one of the best equipped experts in flax, hemp and cotton, and was one of the first to recognize the great future of the new fiber and to bend his energies to the problem of successfully working it.

—Down in the good old Pine Tree State it is a recommendation to be known by one's first name. It therefore follows that D. W. Wiggin, known as "Dan," is popular, which perhaps explains why he sells so many druggists' rubber goods from his Lewiston store.

—It is rumored that Thomas A. Bell, the former secretary of the Star Rubber Co., of Trenton, is interested in a new company that is to manufacture rubber goods in the South.

—The Gutta Percha and Rubber Manufacturing Co., of Toronto, Ont., are selling a machine, recently patented, for cutting electric-light wires in case of fire.

—The rubber-goods trade in Canada, says the *Canadian Shoe and Leather Journal*, has been fairly good this season, especially in sandals, clogs and light wear. Overshoes and heavy goods have not met with a ready sale as yet on account of the continued openness of the weather in the west. All the companies, however, seem to be doing a thriving business, and prices and terms are fairly well maintained.

—P. L. Rider, of Worcester, Mass., has been obliged, by the growth of his rubber-goods trade, to seek larger quarters, removing his store from No. 336 to No. 370 Main street. He makes a specialty of mackintoshes and rubber shoes, and has in connection with his store a shop for repairing rubber goods.

—The South Framingham (Mass.) Manufacturing Co., at their late annual meeting elected Charles F. Cutter president, instead of Franklin Manson, deceased. Their relations with the Pará Rubber Shoe Co. were discussed, and one of the directors was commissioned to confer with the latter concern relative to its plans for the future. The Pará company's ten-years' lease of the buildings of the manufacturing company's plant expires April 1 next, with the privilege of renewal on the same terms. Nothing has been heard so far of the Pará company's plans.

—Randolph Brandt, of New York, is in receipt of many letters from hydraulic and mechanical engineers testifying to the value of the Selden packing. O. J. Morris writes, for example: "I have never seen anything to equal the Selden for hydraulic work."

—The Iroquois Hotel in Buffalo, N. Y., has in use in its electric-light equipment okonite wire laid in plaster. Under the tiling, which cannot be freed from dampness, hard-rubber tubes are used.

—The largest stock of rubber goods between New York and Boston is said to be in the store of the Hartford (Conn.) Rubber Co. The business conducted there is both wholesale and retail, the former embracing the states of Massachusetts, Rhode Island and Connecticut. Mr. M. D. Baldwin, the proprietor of the business, is constantly adding new goods to his lines of boots, shoes, oil-and rubber clothing, and mechanical goods, and is also on the lookout for new ideas in displaying the goods. He has recently placed some fine show windows in his store, and is effectually attending the retail trade.

—The oldest concern in Hartford, Conn., in the supply business, is that of Way & Co., whose trade covers the entire State.

—Fifty years in one business is a long time, but that is just the period that has elapsed since the head of the firm of J. E. Bassett & Co. opened a hardware and supply house in New Haven, Conn.

—Zalmon Goodsell, a former friend of P. T. Barnum, is the leading supply and hardware man of Bridgeport, Conn.

—The old firm of E. R. Lamson & Co., of Waterbury, Conn., were succeeded a short time ago by Barlow Brothers. The brothers are young men and pushers, and as a consequence the business has expanded wonderfully.

—The India Rubber Glove Co. report that business, since the first of January, has opened in excellent shape, and apparently is an earnest of a large volume of trade for the coming season.

—A correspondent of THE INDIA RUBBER WORLD, writing from Chicago, says that rubber goods are not handled in the hardware stores of that city, either wholesale or retail. All the large Eastern manufacturers have branch houses there, and they own retail rubber stores in different parts of the city.

—The plant of the unsuccessful Brunswick Antimony Co., at Medford, Mass., was offered at auction sale on March 2. The company made very fine goods during their active existence, but the management were never able to make a showing of profits. The company still own the mines in New Brunswick.

—The Rubber Trade was well represented at the National Electric Light Association Convention at Buffalo, N. Y., on February 23. Among the familiar faces present was F. S. Minott, of the National India-Rubber Co., J. C. Pierrez, of the Columbia Rubber Works Co., Mr. Bell, of C. S. Knowles & Co., Mr. Butler, of the Indiana Rubber Co. (Jonesboro, Ind.), Richard K. Whitehead, Trenton, N. J., President, Chas. A. Place and George H. Meeker, of the Metropolitan Rubber Co., and J. D. Barr, of the Buffalo Rubber Co. All of them enjoyed their visit and especially so their trip to Niagara Falls and the inspection of the Niagara Hydraulic Tunnel.

—F. W. Stevenson of Mandelburg Co., Limited, is to open an office and salesroom for them in Chicago and expects to make his permanent residence in the "World's Fair" City.

—Mr. W. B. Dowse has just returned from an extensive trip in the West and South in the interests of the Metropolitan Rubber Co., with flattering success, all his old friends in the trade having been so glad to see him that they favored him with all the orders possible, it having been some five years since Mr. Dowse has been able to call upon his numerous friends in the West.

—Mr. W. S. Walton, of the Boston Gossamer Rubber Co., was seen in Cincinnati recently by an INDIA RUBBER WORLD correspondent taking numerous orders in the interests of his company.

—F. H. Plant, Sr., of the Illinois Rubber Co., is rapidly recovering from the serious accident that befell him some time ago.

—Manager Blanchard of the Chicago Rubber Works should feel well gratified at the outlook for spring trade if one may judge by the heavy shipments sent out daily from their warehouse on Randolph street, Chicago.

—Mr. P. H. Hover, of the Standard Paint Co., has been visiting the rubber mills in the West, introducing their ruberoid with excellent results. Experiments indicate that ruberoid may be of great value for use in the manufacture of hard rubber goods. Its use until lately has been confined to clothing, boots and shoes and mechanical goods. Their "P. and B." ruberine is being extensively used for the waterproofing of various fabrics, papers, etc.

—The American Rubber Co. are to take a new and larger store in Chicago, their present quarters having become too small for their rapidly increasing business. The exact location has not as yet been decided upon.

—Theodore Plumb, of the New York Belting and Packing Co., George Bancroft, of the Jewell Belting Co., formerly of the W. S. Nott Co., Minneapolis, and George H. Meeker held a reunion recently at Indianapolis after a long separation.

—The Indiana Rubber and Insulated Wire Co., at Jonesboro, Ind., are mentioned as running full time and having in hand enough orders for their insulated cable for telegraph, telephone or other electric conduits to push their work to their utmost capacity.

—The Atlanta (Ga.) Rubber Co.'s stock and fixtures were sold by the Sheriff on February 8, for $6300, to W. P. Hill, representing the New York Belting and Packing Co., the holder of one of the mortgages on the ill-fated concern. The goods sold had been appraised at $20,000. Mr. Hill at once opened the store for the sale of the stock at retail or in job-lots.

—The Seamless Rubber Co. of New Haven have increased their capital stock from $50,000 to $100,000 by the issue of 500 additional shares of stock at $100 each, which have been fully paid up from the actual surplus earnings of the company.

—The Goodyear Vulcanite Co. are extending their works at Morrisville, Pa.

—The members of the Rubber Bootmaker's Union of New Haven, Conn., have regular meetings for debate. The topic announced for discussion on March 10 was, "Resolved, that strikes are a curse to labor."

—George Watkinson, president of the Colchester (Conn.) Rubber Co., has been in the West lately, and the newspapers of Sandusky, Ohio, report that he has decided to establish in that city a wholesale house and distributing depot for the company's Western trade. Says the *Register:* "A large store will be opened on Water street in which will be carried from $50,000 to $75,000 worth of stock. Goods will be shipped from here to the trade in the States adjacent to Ohio, thus saving dealers the extra expense of long distance freight shipments from the factory in the East. Nothing but rubber footwear will be handled. The store will be opened for business about the first of April and will be in charge of Mr. W. W. Walls, of the Sandusky Shoe Co. The new store will have no connection with the shoe company, but both places will be under the management of Mr. Walls."

—The contract for the buildings of the Southern Rubber Co., at Chattanooga, Tenn., has been awarded to D. J. Chandler, of that city, his bid being $20,310.

—The capital stock of the Cleveland (Ohio) Rubber Co. has been increased from $250,000 to $650,000.

—The number of employés in the "Alice" rubber mill, (Woonsocket, R. I.) is about 1400 with a steady increase, which will finally reach about 2000. The weekly payroll is nearly $11,000, while the weekly payroll of the works in Millville is a little over $11,000, making a total of about $22,000 paid weekly in these two concerns owned by the Woonsocket Rubber Co. This would make a total of about $1,144,000 for the whole year.

—J. H. Kohmescher & Co., rubber-goods dealers in Cincinnati, have removed from No. 161 Main street to find more commodious quarters at No. 30 West Fourth street.

—W. H. Chapman & Co., Middletown, Conn., are manufacturing hard-rubber composing-sticks, said to be very popular with printers who have used them.

—The Bradley Manufacturing Co. have been incorporated at Fort Worth, Texas, with $5000 capital to manufacture rubber stamps.

—New Haven (Conn.) has a Rubber Bootmakers' Sick Benefit Association.

—A recent report gives the number of employés of the National India-Rubber Co., at Bristol, R. I., at 1027.

—At the L. Candee Rubber Co.'s factory at New Haven, Conn., from 22,000 to 23,000 pairs of boots and shoes are made every day. The proportion of shoes is much the larger. Probably at a pinch 30,000 pairs of shoes alone could be made at this factory.

—A fine line of porcelain specialties for electrical goods has been put in stock by C. S. Knowles, No. 7 Arch street, Boston.

—The exceedingly artistic catalogue recently issued by the Standard Thermometer Co., of Peabody, Mass., was designed by H. B. Prindle & Co., the advertising experts, who are located in the new Syndicate Building, Boston.

—C. S. Knowles, No. 7 Arch street, Boston, Mass., has taken the New England agency of the Home Rubber Co., of Trenton, N. J.

—The Albert combination syringe is a new article that is finding quite an extensive market. It is the invention of Francis Holton, and Albert T. Holt, of Akron, Ohio. The syringe is especially adapted for use in cases where hot water is to be applied for throat troubles. It has no valves, is compact and convenient, and doubtless will have a large demand.

PHILADELPHIA RUBBER NOTES.

THE rubber business of Philadelphia is largely in supplying the Pennsylvania and Reading railroads, the steamship lines which enter at that port and the large mining interests which naturally make that city their headquarters. The Reading and the Pennsylvania roads are each good for $100,000 worth of rubber goods in a year, but the business is in all lines spasmodic. The natural flow of trade which centers at Philadelphia comes from Eastern Pennsylvania, Maryland, Delaware and Eastern Virginia. A large trade in garden-hose has been built up, Philadelphia having more than any other city, a good expanse of ground, in addition to the country homes with the invariable lawn, all of which adds to the extent of the business in this direction. The trade this season in boots and shoes and clothing has been only fair.

—In the Philadelphia office of the New York Belting and Packing Co. is framed an old-time invitation dating back to 1856, printed in small italics, and reading as follows:

The pleasure of your company is requested to the opening of the Goodyear India Rubber establishment, No. 104 Chestnut street, on Tuesday evening, at 8 o'clock.

It goes without saying that there are very few rubber men now living who remember the festivities of that occasion.

—That rubber goods well made are durable is shown by a large piece of matting bought by the Pennsylvania Railroad twenty-five years ago and still in use. It was inserted in iron to prevent its fraying, and is a stumbling block to the sale of rubber goods of poor quality to that company.

—D. P. Dieterich, with the New York Belting and Packing Co., in Philadelphia, is one of the few old-time rubber-men left in this country. He was in the first rubber store opened in New York, which was located by those interested in the Goodyear patents at No. 100 Broadway. He located in Philadelphia in 1850 and has been there ever since. Mr. Dieterich's grandfather was a baker in New York, and when John Jacob Astor came to this country, he first obtained employment in this bakery, where he remained about a year. Mr. Dieterich naturally has seen a business grow up from small beginnings. He was present at the famous trial which involved the validity of the Goodyear patents, and listened to the arguments of Daniel Webster, who received for his services the then princely sum of $10,000.

—Sayen & Austin, proprietors of the Mercer Rubber Co., at Trenton, N. J., are pleasantly located on Market street, Philadelphia, and report a satisfactory business this season with a very fair outlook. They make and sell a full line of mechanical goods, clothing, boots and shoes, and are large importers of hand-woven English linen hose.

INDIVIDUAL MENTION.

MR. R. E. HOTCHKISS of the Boston Rubber Co. spent some time in New York during the past month, settling up the affairs of his father's estate with the India-Rubber Glove Manufacturing Co. We are indebted to him for the pleasure of a call at the sanctum of THE INDIA RUBBER WORLD, and also for a very encouraging report as to the condition of trade both in the carriage-cloth and boot and shoe lines.

—Lamer Gillett, of Goshen, Ind., has been appointed head bookkeeper of the Goodyear Rubber Co., at Chicago.

—Joseph Banigan, president of the Woonsocket Rubber Co., it is stated by a local newspaper, is about to build a splendid mausoleum, with mortuary chapel, where will rest the remains of himself and relatives, in St. Francis' cemetery near Pawtucket, R. I. The building will be elaborate in design, and will cost over $100,000.

—Mr. Eugene H. Clapp, proprietor of the rubber mills at Hanover, Mass., and the proprietor of successful manufacturing enterprises innumerable, is ill with nervous prostration. To the delight of his many friends he is recovering, although slowly. It will probably be some weeks before the physicians allow him again to take up active business.

—A genial fisherman, and one who has not only a fund of fish stories but a large collection of mounted fish-skins in which he takes great pride, is the senior member of the firm of Higgins & Hyde of Rutland, Vt. All the druggist-sundries men know him.

—It is said that Thomas J. Holmes, the manufacturer of Holmes' Atomizers, has recently made $18,000 in stocks.

—John Hopewell, Jr., president of the Reading Rubber Works of Boston, is at the Hygeia Hotel, Old Point Comfort, Va., resting, which is one of the wisest things that this indefatigable worker has done in a long time.

—Mr. Henry F. Knowles, of the Globe Rubber Works, Boston, recently opened a package of "Solace" and found therein an invitation to call upon the Gorham Co., well-known silversmiths. This he was not slow to do and he now discards tinfoil and carries his fine-cut in a silver wrapping with a gold lining, for his present was a handsome tobacco-box.

—Mr. Frederick W. Heustis, general manager of the American Ramie Co., who contributed a readable article to a recent number of THE INDIA RUBBER WORLD on the uses of Ramie fiber in mechanical rubber goods, has spent some years in the rubber business and is the patentee of some inventions of great merit.

—At a certain table, at the same hour every day, in one of the best known commercial lunch clubs in Boston, may be seen James Bennett Forsyth, Manufacturing Agent and General Manager of the Boston Belting Co. He is usually accompanied by his private secretary, Mr. Whitmore, and often by his younger brother, George, who greatly resembles him in form and feature. Mr. Forsyth was one of the first who helped start the club, a number of years ago, and he has dined there ever since.

—Mr. Parker, the senior member of the firm of Parker, Stearns & Sutton, of New York, is in Florida, enjoying a brief winter vacation.

—Mr. Ratcliffe Hicks, President of the Canfield Rubber Co., has gone on a winter vacation, Florida being the objective point.

—Walter F. Ware, of Philadelphia, the "Mizpah man," has gone West on a three months' business trip.

—Major J. Orton Kerbey, late United States Consul to Pará and author of one of the most interesting and comprehensive reports in the special Government series on India-rubber, has returned to the Amazon valley on a private business mission. Before sailing on March 5 he paid the offices of THE INDIA RUBBER WORLD a pleasant visit.

TRADE PUBLICATIONS.

J. F. W. DORMAN & CO. (No. 217 East German street, Baltimore) have issued a new pamphlet of Wholesale Prices of Tools and Stock for making Rubber Stamps, Stencil and Key-Tag goods, etc. It describes the "Climax," their latest patent steam vulcanizer for rubber stamps and cellutypes, the latter being a celluloid substitute for electrotypes or stereotypes for printing. Other forms of vulcanizers for rubber-stamp making are the "Peerless" and "Hercules," together with smaller and cheaper forms. Estimates are given of the cost of outfits for making rubber-stamps and cellutypes, including the right to make the latter.

—The March calendar distributed by the Stephen Ballard Rubber Co. (New York) is a card upon which appears a cut of "Old Nick" urging a man on the brink of his abode, armed with Ballard's hose, not to put his "fire" out. A neat little pamphlet price-list of hose made by this firm, with suitable engravings, is also sent out this month.

—The fourth edition of the illustrated catalogue of I. B. Seeley & Co. (No. 25 South Eleventh street, Philadelphia) is a copyrighted pamphlet of 95 pages, sold at 25 cents. It devotes considerable space to the mechanical treatment of hernia, besides describing Seeley's Hard-Rubber Specialties, including trusses and supporters.

—The National India-Rubber Co. (Bristol, R. I.) are out with a new price-list of Tennis Goods. The new goods this year embrace many beautiful styles and are a decided advance over shapes and patterns of any previous season.

—The Boston Belting Co. have issued a new edition of their attractive, convenient and interesting price-list of India-rubber goods for mechanical purposes, manufactured in their Boston factories, and sold throughout this country and in many foreign markets. The catalogues of this company are filled with much information of value to buyers and users of mechanical rubber goods, such as suggestions for the transmission of power by rubber belting, water-pressure through various lengths of hose, etc. Several pages are devoted to rubber-covered rollers, which are largely used in textile and other factories.

Rubber-Goods Exports From New York.

THE declared value of exports from New York during the four weeks ending February 23, 1892, under the general heading of "India-Rubber Goods," according to the Collector of the Port, is given in detail in the table below. In a parallel column is given the value of exports to the same countries since the beginning of the year. It may be mentioned that 53 per cent. of our exports of rubber goods last year went through the port of New York. The table referred to above follows:

To—	Four Weeks.	Since Jan. 1.	To—	Four Weeks.	Since Jan. 1.
Amsterdam	$ 34	$ 111	French W. Indies.	$ 15	$ 15
Antwerp	560	2,874	Gijon	—	8
Berlin	127	587	Glasgow	—	600
Bolton	—	58	Hamburg	4,341	7,760
Bolivia	1,385	1,385	Havre	17,947	29,890
Brazil	773	1,218	Hayti	42	219
Bremen	1,063	1,303	Japan	1,161	1,161
British Africa	30	240	Leipsic	147	147
British Australia	2,781	4,041	Liverpool	847	1,252
British Honduras	—	4	London	382	2,827
British E. Indies	128	128	Marseilles	—	1,003
British W. Indies	348	531	Mexico	2,030	3,640
Budweis	452	452	Newfoundland	58	258
Central America	340	623	New Zealand	—	27
Chili	30	635	Peru	305	392
Christiania	343	489	Porto Rico	7	79
Colombia	402	1,189	Rotterdam	132	2,082
Copenhagen	358	1,078	San Domingo	—	30
Cuba	1,491	3,201	Sandwich Islands	152	152
Danish W. Indies	14	84	St. Gall	61	386
Dutch E. Indies	52	71	Venezuela	247	657
Dutch W. Indies	104	179	Vienna	92	92
Ecuador	—	108	Total	$38,741	$74,121

The value of crude India-rubber exported from New York during the four weeks ending February 23 is stated in the next table. The direct exports to Genoa are of interest, as indicating a probable increase in rubber-manufacture in Italy:

To—	Packages.	Value.	To—	Packages.	Value.
Bremen	1	$ 30	Hull	296	$50,400
Brussels	3	488	Liverpool	206	31,430
Genoa	136	2,000	London	15	840
Glasgow	40	600			
Hamburg	66	2,735	Total	765	$89,183

Twenty-five packages of gutta-percha, invoiced at $2440, were exported to Hamburg. The export of India-rubber scrap amounted to $4780, consigned to Glasgow. Among manufactured goods exported containing more or less rubber were clothes wringers invoiced at $5702.

REVIEW OF THE RUBBER MARKET.

DURING the past month the rubber market has been one of slowly appreciating values. The heavy deliveries in February, never before equaled, were taken without embarrassment and naturally this gave a tone to the market which was quickly realized by the buyer. Prices slowly made their way to the point of 70 cents, and as this was on a normal basis, contrary to that of a year ago, when a speculative combination was in the field who before they were through were compelled to sell at about that price, the firmness of the situation can be readily grasped. The consumption of rubber outstrips in a small degree that of production, and with violent speculation out of the way, it doubtless will soon reach a point where it will be debatable whether the various "substitutes" are not more profitable in some branches of manufacture than rubber itself.

The general public are slowly becoming acquainted with the difference in the qualities of rubber goods and every season adds to the number of people who will pay more for that which will last, and will on the other hand make an annoyance to the retailer who, wittingly or unwittingly, makes the error of selling an inferior article for the sake of making a low price. The old adage that the customer at first questions the price but always remembers the quality is slowly asserting itself in the rubber trade. It is asserted by one of the houses which uses nothing but Pará rubber that it is always prosperous, never experiences dull times, and always makes money. It is in this way that the consumption of rubber is growing as well as in an extension of of its uses.

The transactions in both new and old Pará have been large. For Centrals there has been a large demand and arrivals are rapidly absorbed. The demand for Africans has been excellent.

The whole visible supply of Pará rubber on March 1, with comparisons for February 1, is estimated as follows:

	February 1, 1892.	March 1, 1892.
United States	748 tons.	846 tons.
England	1074 tons.	1440 tons.
Pará	1650 tons.	640 tons.
Afloat to United States	920 tons.	846 tons.
Afloat to England	400 tons.	250 tons.
Total	4842 tons.	4022 tons.

One year ago there were 4300 tons. The distribution into second hands is much better than it was last year, due naturally to the fact that last season Baron de Gondoriz and his companies were accumulating rubber, and storing it away in all parts of the world, while this year the position of stocks seems to be entirely normal. Deliveries for the same reason are larger and more natural than one year ago, being 650 tons in England and 1303 tons in the United States, against 550 tons in England, and 1090 tons in the United States in February, 1891—deliveries, however, never equalled before. The receipts at Pará during February were 1670 tons as compared with 2310 tons one year ago. In March, 1891, the receipts were 1530 tons.

The receipts at New York from Pará during the month have been as follows:

	Pará.	Caucho.
February 15—By the *Vigilancia*	283,000 pounds.	21,000 pounds.
February 23—By the *Gregory*	538,000 pounds.	58,000 pounds.
February 25—By the *Advance*	164,000 pounds.	
February 26—By the *Cyril*	509,000 pounds.	
March 10—By the *Amazonense*	1,200,000 pounds.	
March 11—By the *Finance*	190,000 pounds.	
Total	2,884,000 pounds.	79,000 pounds.

Afloat to England is the *Sobralense* with 500 tons, and the *Justin* for New York with 470 tons.

In February 214,000 pounds of Centrals arrived in New York.

The increase in the consumption of rubber during the last six months of 1891 was 58½ per cent. over the same time in 1890, for America and 34¾ per cent. for Europe.

A Pará cable of March 12 states that the market for Islands is 4650 reis and Upriver 5000, with exchange 11 7/16d. Receipts so far this month were 220 tons.

London prices are reported by cable at 34 5/16d. with small lots only offering.

The statistical position of Pará rubber in New York is thus reported for February, 1892, as compared with the same month in preceding years:

Stock of Pará here	January 31, 1892,	about	1,750,000 pounds.
Receipts	February	"	3,087,000 pounds.
Deliveries	February	"	2,887,000 pounds.
Stock	February 29, 1892,	"	1,950,000 pounds.
Stock	February 28, 1891,	"	1,950,000 pounds.
Stock	February 28, 1890,	"	700,000 pounds.

Prices for February.

	1892.		1891.		1890.	
	Fine.	Coarse.	Fine.	Coarse.	Fine.	Coarse.
First	64	44	87	61	68	47
Highest	67	47	87	62	80	60
Lowest	64	44	84	59	68	47
Last	67	47	87	60	80	60

The latest New York quotations are:

Pará, fine, new	70-71	Sierra Leone	26-45
Pará, fine, old	72-73	Benguela	49-50
Pará, coarse, new	49-51	Congo Ball	38-44
Pará, coarse, old	52-53	Small Ball	—
Caucho (Peruvian) strip	47-48	Flake, Lump and Ord.	27-28
Caucho (Peruvian) ball	53-54	Mozambique, red ball	
Mangabeira, sheet	42-43	Mozambique, white ball	
Esmeralda, sausage	51-52	Madagascar, pinky	53-54
Guayaquil, strip	40-42	Madagascar, black	40-42
Nicaragua, scrap	49-50	Borneo	36-44
Nicaragua, sheet	47-48	Gutta-percha, fine grade	175
Guatemala, sheet	40-45	Gutta-percha, medium	110
Thimbles	42-43	Gutta-percha, hard white	110
Tongues	35-40	Gutta-percha, lower sorts	nominal

In regard to the financial situation Messrs. Simpson & Beers, brokers in crude India-rubber and commercial paper, New York, report:

"Money ruled very easy throughout February. Prime rubber notes were in fair supply and readily placed at 5 and 5½ per cent. First-class 'Receivables' sold as low as 4½ per cent. At present desirable rubber paper is scarce. Towards the end of February a material demand set in for gold for export, and possibly $10,000,000 to $20,000,000 may be taken during the spring. We can, however, well spare it without causing any stringency in the money market, the bank surplus still being over $20,000,000."

Mail advices from Liverpool give the following statistics and prices at the end of February:

		Tons.
Stocks Pará rubber, February 1	1,010	
Importations in February	886	1,896
Sales and deliveries		815
Stocks, March 1, 1892		1,081
Stocks, March 1, 1891		744
Stocks, March 1, 1890		813
Stocks, March 1, 1889		1,695

Business during the month was called very good. For Ceará rubber there had been a fair demand. In Mangabeira sales had been made at 1s. 4½d. In Peruvian there was more enquiry for slabs and strips at prices as high as 1s. 9½d. Of Afri-

THE BIG RUBBER-SHOE COMBINATION.

Formation of the United States Rubber Company.

THE first definite step in the organization of the combination of rubber-shoe manufacturers, to which reference was made in the last issue of this journal, was the filing of articles of incorporation under the laws of New Jersey on March 30. The document was presented to the Secretary of State, at Trenton, by Lowry, Stone & Auerbach, New York lawyers, counsel to the new company, who made the deposit of $10,000 required by law. It was also filed in the office of the County Clerk of Middlesex county, at New Brunswick, where Mayor James H. VanCleef has been retained as local counsel. State Senator Garrett Hobart, of Paterson, is named as general counsel for New Jersey. The articles of incorporation state the proposed objects of the new concern pretty fully, as follows:

CERTIFICATE OF ORGANIZATION OF THE UNITED STATES RUBBER COMPANY.

WE, the undersigned, William Barbour, of Paterson, New Jersey, and William L. Trenholm, J. Edward Simmons, John P. Townsend and John I. Waterbury, of New York City, New York, do hereby associate ourselves into a Company under and by virtue of the provisions of an Act of the Legislature of the State of New Jersey entitled "An Act Concerning Corporations," approved April 7, 1875, and the several supplements thereto and acts amendatory thereof, for the purposes hereinafter mentioned, and we do hereby assume to and for said Company all the rights, powers and privileges granted to and conferred upon corporations by the laws of the said State of New Jersey, and do hereby certify and set forth as follows:

I. The name assumed to designate such Company and to be used in its business and dealings is United States Rubber Company.

II. The places in the State of New Jersey where the business of said Company is to be conducted are the City of New Brunswick in the County of Middlesex, and also those other cities towns and villages in said State in which said Company may hereafter deem it expedient to conduct its business, and the City and County in which the principal part of the business of said Company within said State is to be transacted and conducted is the said City of New Brunswick in the County of Middlesex. The part of the business of the said Company to be carried on without the said State of New Jersey is as hereinafter stated. The City, County and State in which the principal office or place of business of the said Company out of the State of New Jersey is to be situated, is the City, County and State of New York, and the said Company also proposes to have a business office in the City of Boston, Massachusetts, and one in the City of Chicago, Illinois, and carry on operations in all of the States and Territories of the United States and in foreign countries.

The objects for which the said Company is formed are the making, purchasing and selling rubber boots and shoes and all goods of which rubber is a component part, and the various materials entering into the manufacture of any and all such goods, and also the acquiring and disposing of rights to make and use any and all such goods and materials, and the doing and transacting all acts, business and things incident to or relating to or convenient in carrying out its business as aforesaid which are authorized by law, including the purchasing the stock of any company or companies owning, mining, manufacturing or producing materials or other property necessary for its business, or of any other company whose shares it may lawfully purchase and exercising with relation thereto all the rights, powers and privileges of individual owners of the shares of such stock.

The portion of said Company's business which is to be carried on out of the State of New Jersey is its financial business generally and as well such portion of its manufacturing business and the business of buying and selling as it may from time to time find convenient.

III. The total amount of the Capital Stock of said Company is $50,000,000. The number of shares into which the same is divided is 500,000, and the par value of each share is $100. The stock of the said Company is to be of two kinds, to wit, general stock and preferred stock. The amount of the preferred stock shall at no time exceed one half of the total outstanding capital stock of the Company. The holders of the preferred stock shall be entitled to receive semi-annually all net earnings of the Company determined and declared as dividends in each fiscal year up to but not exceeding 8 per cent. per annum upon all outstanding preferred stock before any dividend shall be set apart or paid on the general stock, but such dividends upon the preferred stock shall not be cumulative, and the preferred stock shall not be entitled to participate in any other or additional earnings or profits. In case of liquidation or dissolution of the Company the holders of preferred stock shall be entitled to receive cash to the amount of their preferred stock at par before any payment in liquidation is made upon the general stock, and shall not thereafter participate in any of the property of the Company or proceeds of liquidation. The amount of capital stock with which the said Company is to commence business is the sum of $100,000 divided into 1000 shares of the par value of $100 each, of which 500 shares are to be preferred and the remaining 500 shares general stock. Additional issues on account of the total authorized capital stock may be made from time to time, either in preferred or general stock, or both, in such sums and in such manner as the Board of Directors of the Company may determine, and in accordance with law and with this Certificate.

IV. The names and residences of the stockholders and the number of shares held by each are as follows:

NAMES.	RESIDENCES.	NUMBER OF SHARES. General.	Preferred.
William Barbour,	Paterson, N. J.	100	100
William L. Trenholm,	New York City, N. Y.	100	100
J. Edward Simmons,	" " " "	100	100
John P. Townsend,	" " " "	100	100
John I. Waterbury,	" " " "	100	100
Total Shares		500	500

V. The period at which the said Company shall commence shall be the 30th day of March, 1892, and the said Company shall terminate on the 30th day of March, 1942.

In witness whereof, we have hereunto affixed our hands and seals respectively this 29th day of March, in the year 1892.

W. BARBOUR, [L. S.]
W. L. TRENHOLM, [L. S.]
J. EDWARD SIMMONS, [L. S.]
JOHN P. TOWNSEND, [L. S.]
JOHN I. WATERBURY. [L. S.]

STATE OF NEW YORK, CITY AND COUNTY OF NEW YORK, } ss.:

Be it remembered that on this 29th day of March, 1892, before me, the subscriber, a Master in Chancery of the State of New Jersey, personally appeared William Barbour, William L. Trenholm, J. Edward Simmons, John P. Townsend and John I. Waterbury, who I am satisfied are the incorporators in the foregoing instrument named; and I having first made known to them the contents thereof, they did each acknowledge that they signed, sealed and delivered the same as their voluntary act and deed, and for the uses and purposes therein expressed.

In witness whereof, I have hereunto set my hand,

RANDOLPH PARMLY,
Master in Chancery of New Jersey.

[Endorsed—"Received in the Clerk's office Middlex county, March 30, A. D., 1892, at 8.40 o'clock in the forenoon, and Recorded in Book 'C' of Incorporated Societies, page 175, &c. P. CONVERY, Clerk."

Endorsed—"Filed March 30, 1892. HENRY C. KELSEY, Secretary of State."]

In New York City on the same day the newspapers were furnished with slips, unsigned, containing the following statements, which THE INDIA RUBBER WORLD is informed, from the office of a member of new corporation, are authentic:

"The company will do a manufacturing and mercantile business. It will manufacture in New Jersey and in other States and deal in rubber goods, particularly rubber boots and shoes and the various materials which enter into the composition of such goods. Its maximum capital stock has been fixed at $50,000,000, but only a small part of this amount is to be issued at present. The company needs and will have ample capital in conducting its business, to enable it not only to pay cash for supplies and raw material but to introduce new and improved methods by classifying its manufacturing.

"At present manufacturers of rubber boots and shoes pay heavy tribute to the producers of various materials used in making these articles, such as litharge, whiting, buckles, dry goods, etc. In the case of one of these materials rubber manufacturing concerns now pay to the manufacturers of it a profit of over 40 per cent. on its cost. The United States company proposes to purchase or erect factories for the manufacture of these various materials, in order to obtain them at the lowest possible price. With these advantages, and with its ability to pay cash, as above stated, this company will be able to improve the quality of rubber goods.

"At present competition which has existed between rubber manufacturing companies is so extreme that many manufacturers have taken refuge in making goods which may appear to be of the first quality, but really have not that intrinsic merit which is requisite for good wear. The newly-organized company, by classifying its manufacturing and by obtaining its raw material to better advantage, can and will produce goods of a better quality than those now manufactured, and sell them to consumers at present prices without in any way changing the existing methods of sale and distribution.

"The rubber industry has developed very rapidly in the United States, the amount of business having trebled during the past twenty years, so that to-day two-thirds of all the rubber produced in the world is consumed in this country. The one thing needful in this business now is to raise the standard of quality, which has seriously depreciated under the present methods. This company expects to effect savings and thus be able to declare handsome dividends on its stock without encroaching upon an ample margin for the improvement of the quality of its goods and without increasing their price."

Following the incorporation of the company a meeting was held, on the same day, in Jersey City, at which a Board of Directors was chosen. Besides the incorporators named above the list embraces Henry Steers, President of the Eleventh Ward National Bank, New York; Robert M. Galloway, President of the Merchants' National Bank, New York; Thomas F. Patterson of Sawyer, Manning & Co., Boston, and Charles E. Thayer of Boston.

On April 4, at a meeting of the directory at No. 3 Broad street, New York, the following officers were elected:

President—William L. Trenholm.
Treasurer—John P. Townsend.
Secretary—John I. Waterbury.

At this meeting, it is stated, the officers of the company were authorized to purchase the plant, good-will and personal property of the New Jersey Rubber Shoe Co., at New Brunswick, N. J., and a basis of contract was arrived at which was agreed to and ratified by all the stockholders of both companies. A payment of $1,000,000 on account was authorized. The balance to be paid will be determined by appraisement. A committee was also appointed to negotiate for the purchase of the plant of the Meyer Rubber Co,. of New Brunswick, which has been done.

Other meetings have been of almost daily occurrence, at which the details of absorbing other companies have been discussed, conflicting reports being made public as to the results. Meanwhile much gossip has been indulged in respecting the fact that none of the incorporators, directors or officers of the United States Rubber Co. are engaged or known to be interested in the rubber trade. Those who predict the failure of any attempt to combine the rubber-manufacturing interests assert, indeed, that the whole plan is intended merely as a basis for stock-jobbing operations in Wall street, where profits are sometimes made out of the ownership of factories not themselves profitable. On the other hand, it is denied that any of the stock is to be offered to the public, but that all of it will be taken by the proprietors (stockholders) of the various corporations which the new concern expects to purchase. A member of the firm of H. B. Hollins & Co., bankers of Broad and Wall streets, New York, said that his firm was going to "help the new company along" by attending to its financial matters, the issuing of the stock, etc.

The purchase of the New Jersey Rubber Shoe Co.'s plant began the actual operation of the new corporation, and for the present those works may be regarded as the headquarters of the United States Rubber Co.

From the outset the L. Candee Rubber Co., of New Haven, has been mentioned as a possible important mem-

ber of the new combination, and a committee was appointed at an early meeting of the United States company's directory to report upon the purchase. On April 6 this report was given out:

"Henry L. Hotchkiss, President of the L. Candee Rubber Co., said to-day that the newly-formed United States Rubber Co. had neither absorbed nor purchased the extensive plant of the Candee company. Mr. Hotchkiss said that Secretary Charles L. Johnson of the Candee company and himself entered the Directory of the United States Co. for reasons which look to the protection of the Candee company's business interests. Whether this company will or will not have contract relations with the new corporation, he said, is a question to be settled in the future, but in no event will the operation of the plant in New Haven be discontinued. The Candee company is now employing about 2000 persons."

Beside the two additional directors here named, W. C. Martin, president, and James Deshler, secretary, of the New Jersey Rubber Shoe Co., were added to the directory on April 5, on which date the transfer of the property of that company was made.

The attitude of one section of the rubber-shoe manufacturing trade is shown in an interview with Joseph Banigan, president of the Woonsocket Rubber Co., published in the Providence (R. I.) *Telegram*, in which it is understood that Mr. Banigan is largely interested. Mr. Banigan is reported as saying:

"The rubber trust formed in New Jersey does not include the Woonsocket Rubber Co. There are eleven companies in the trust representing but $9,000,000 out of the $22,000,000 invested in the rubber business in the United States.

"The companies not in the trust are the Woonsocket Rubber Co., Boston Rubber-Shoe Co. and Goodyear India-Rubber Glove Co. All these are rubber-shoe companies.

"The companies in the trust are the Colchester Rubber Co., Brookhaven Rubber-Shoe Co., now reorganized as the Brookhaven Rubber Co., Lycoming Rubber Co., New Brunswick Rubber Co., New Jersey Rubber-Shoe Co., Meyer Rubber Co., National Rubber Co., Goodyear Metallic Rubber-Shoe Co., Boston Rubber Co., Candee Rubber Co. and American Rubber Co.

"These companies have for some months been arranging to form the new trust. They are the weaker manufacturers, who have probably found it hard work to get along while the speculators in India-rubber have been juggling with the market. The manufacturers are now anxious to get out of the difficulty which the gamblers have made for them.

"Then again the importers had trusted these weak-kneed concerns for large amounts and take this method of getting their money back. Most of the concerns in the trust have old-fashioned machines and appliances and it is not probable that they will be able to secure facilities of the latest type."

Much interest has been felt in regard to the possible connection of the Pará Rubber-Shoe Co. with the new concern. It has been suggested that the Pará company's plant, even if it should not be desirable to operate it at this time, would be too great a weapon in the hands of competitors for the new combination to fail to get control of it. It is reported from South Framingham, Mass., that the Pará plant was sold on April 9 by its owners to the Pará company, who have been lessees for ten years past including the land adjoining, for $101,559. The Boston *Commercial Bulletin* says: "The United States Rubber Co. appears as the purchaser of the plant of the defunct Pará Rubber Shoe Co., consideration not given. Whether the new company will run the works or keep them closed depends on circumstances." Another report names the latter price at $175,000.

An interview has been published, purporting to quote a New York member of the new corporation, as follows:

"Negotiations are also pending for a working arrangement with the L. Candee Co., of New Haven, Conn."

"What do you mean by a working arrangement?"

"The company has made an arrangement with a New Haven company which I am not at liberty to describe differently from the way I have."

The question of the ability of the United States Rubber Co. to combine all the rubber-shoe manufacturers into one concern, or, failing in that, to compete successfully with such big independent companies as the Woonsocket and Boston Rubber-Shoe, is a matter of conjecture and the outcome will be watched with intense interest. There is a point distinct from manufacturing, however, which seems to be the basis of the combination. At the meeting of directors on April 5 a committee was appointed to make arrangements for the purchase of the two lines of steamers doing the transportation on the Amazon river, with a view to obtaining rubber nearer the sources of supplies, instead of buying it at Pará, at the mouth of the river, as heretofore. At a meeting on April 7 the committee reported that a representative of the steamboat interests on the Amazon would at once leave for New York with power to conclude the sale of the steamers in question to the United States Rubber Co.

While not named in any official capacity in connection with the United States Rubber Co., it is understood that an important promoter of the new organization is Charles R. Flint, of New York, well known on account of his interest in rubber and other South American trade. He is at the head of the New York Commercial Co., Limited, who are represented at Pará by Norton & Co., already third in the list of rubber exporters from the Amazon river. The relative standing of Norton & Co. as exporters of crude rubber is shown in a table of the Pará rubber movement for 1891, furnished to The India Rubber World by the New York Commercial Co., Limited:

Exporters.	Pounds.
La Rocque da Costa & Co.	6,351,153
Pusinelli Prüsse & Co.	5,820,379
Norton & Co.	5,383,813
Thirty other firms	12,817,732

The greater part of Norton & Co.'s exports being consigned to the United States, it happens that they shipped very nearly one fourth of all the rubber exported from Pará to this country during 1891.

Also included in the list of those credited on Wall street with an interest in the new rubber combination is William M. Ivins, who recently retired from an important New York law firm to accept the presidency of the United States and Brazil Mail Steamship Co., one of the few lines

whose ships sail under the American flag. It happened that Mr. Ivins was a partner in the firm of W. R. Grace & Co. when the latter were building up a trade in crude rubber at Parà, and he is supposed to be familiar with many details of South American trade. The plan appears to involve, therefore, the control not only of the steamboat transportation on the Amazon, and consequently the rubber-carrying trade on that river, but the carrying of rubber to New York, as well as the manufacture of the raw product when it reaches this country. The franchises of the Amazon-river steamboat lines, by the way, involve liberal subsidies from the governments of Amazonas and Grão Pará, which, it is hinted, on account of the shortage usual in Brazilian public treasuries, is much more apt to be paid in concessions of valuable rubber forests than in money.

THE INDIA RUBBER WORLD had prepared a list of companies which had been mentioned in connection with the combination and submitted it to a prominent official of the concern on April 12, with the result that those named below were checked off as positively having joined in the movement:

Lycoming Rubber Co., Williamsport, Pa.
New Brunswick Rubber-Shoe Co., New Brunswick, N. J.
New Jersey Rubber-Shoe Co., New Brunswick, N. J.
Meyer Rubber Co., Newtown, N. J.
L. Candee Rubber Co., New Haven, Conn.
Colchester Rubber Co., Colchester, Conn.
Manhattan Rubber Co., Setauket, L. I.
American Rubber Co., Boston.
Goodyear Metallic Rubber-Shoe Co., Naugatuck, Conn.
National India-Rubber Co., Bristol, R. I.
Pará Rubber-Shoe Co., South Framingham, Mass.

The companies not yet in the combination, according to the same authority, are:

Boston Rubber-Shoe Co., Boston, Mass.
Woonsocket Rubber Co., Woonsocket, R. I.
Goodyear Rubber Co., Newtown, Conn.
India-Rubber Glove Co., Naugatuck, Conn.
Lambertville Rubber Co., Lambertville, N. J.
Canadian Rubber Co., Montreal, Que.
Granby Rubber Co., Granby, Ont.

There has been some doubt expressed as to the scope of the agreement with the National India-Rubber Co. and the American Rubber Co., since they make other goods than boots and shoes. It is authoritatively stated, however, that the entirety of these plants will be absorbed by the larger company and that no arrangement in part will be made with them.

L. D. APSLEY AND HIS RUBBER-MILL.

TWENTY miles from Boston, on the line of the Massachusetts Central and Fitchburgh railroads, is the thriving manufacturing town of Hudson. One of its most prosperous concerns formerly bore the name of the Goodyear Gossamer Co., but is to be known hereafter as the Apsley Rubber Co. The business of the concern was started in a small way in 1885, doubling in size within a year. In 1888 the plant was destroyed by fire and the owners at once laid plans for a new and more substantial plant, which was completed by November, 1889. To give it a good start the owners invited 500 guests, embracing the prominent rubber-clothing men of the country, to an old-fashioned house-warming. Of the good cheer that was then enjoyed the trade are never tired of speaking. The splendid mill buildings made the plant of the Goodyear Gossamer Co. the most complete one in the world for the manufacture of gossamer clothing. They were then seven in number, built of brick and iron, filled with the most improved machinery, and with especially effective fire-protection.

The prime mover in this enterprise was Mr. L. D. Apsley, who was born in Norththumberland, Pa., September 29, 1852. His business career began very early in life, he having engaged with a Philadelphia wholesale tobacco-house as travelling salesman soon after passing his fifteenth birthday. He held similar positions with brief intermissions until 1876, when he made his first appearance in the rubber-goods business as assistant superintendent of that department in John Wanamaker's "Grand Depot," Philadelphia, and he still refers with a great deal of pleasure to his experience there. One day he noticed that the lace and fancy-goods sales were advertised frequently on stormy days, while customers were advised to buy waterproofs and rubbers on days that were warm and fine. He therefore instituted the plan of consulting the weather predictions before the advertisements were placed. The plan worked like a charm and no more blunders of that kind were made.

On leaving that house he became connected with the Hodgman Rubber Co., in New York, but soon after accepted a position as salesman for the Gossamer Rubber Clothing Co. (owned by the Conants, of Boston) with headquarters at Chicago, looking after their entire business west of New York. The good-will of the trade which he gained during the five or six years in which he held this position he regards as the foundation of the success achieved in his own business.

Realizing that if he could make money for others he could make it for himself, Mr. Apsley associated with himself Mr. C. H. Coffin, a salesman for the same company he had been serving with such excellent results, and started the Goodyear Gossamer Co. in September, 1885.

Prior to this time the only styles of gossamer clothing made were plain rubber surface goods. Mr. Apsley during his connection with the Gossamer Rubber Clothing Co. had frequently urged the importance of producing goods which would not only prove serviceable but commend themselves to the good taste of the wearer, and immediately upon engaging in business he began to experiment with this end in view. The outcome of this was the production of the

waterproof cloaks that have become known to the trade as "India cloths." The value of this improvement was recognized by competing firms, who, in order to avail themselves of it, contested both the originality of the invention and the validity of the patents in the courts; but they were beaten at every point and compelled finally to pay royalties to the Goodyear Gossamer Co.

In a short time Mr. Apsley became a leading spirit not only in Hudson, but in the business he had chosen. When the Gossamer Rubber Manufacturers' Association of the United States was formed, in 1888, he amazed his associates by showing a volume of business that seemed almost incredible. He was soon made president of the association, and was one of its mainstays while it was in existence.

In the meantime he was made President of the Hudson Board of Trade, President of the Woodman Manufacturing Co., and was instrumental in forming a large corporation for the manufacture of leather shoes, besides forming an electric-light company which he sold to the town.

In March last Mr. Apsley purchased the interest of his partner, paying him more than $100,000, and changed the name of his concern to the Apsley Rubber Co. The chief reason for the change in the name was that there were several mills manufacturing rubber clothing that had names so nearly like that of the Goodyear Gossamer Co. that it caused confusion.

Mr. Apsley is the largest stockholder in his concern, and its president and treasurer. The rest of the company are two of his best salesmen, Messrs. Hamilton and Norton, to whom he gave some stock for the purpose of forming a corporation under the laws of Massachusetts.

The portrait that accompanies this article is a good one, but those who know Mr. Apsley will miss the genial smile that lights up his face when engaged in conversation.

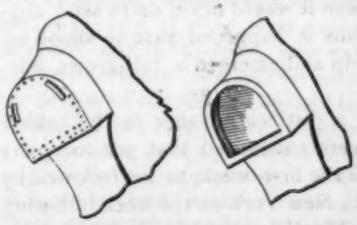
When the revision of the tariff was taken up by the Fifty-first Congress, the rubber-clothing manufacturers deemed it their duty to themselves and their employés to ask for an increase of the duty on imported goods, from the fact that foreign manufactures were flooding the country and invading the market which should furnish the largest outlet for home productions. As president of the Rubber Manufacturers' Association Mr. Apsley brought this matter before that body, and he was appointed chairman of a committee to proceed to Washington and consult the Ways and Means Committee of the House. The other members of the committee were Mr. Cable, president of the Cable Rubber Co., C. A. Place, president of the Metropolitan Rubber Co., and J. A. Churchill, of J. Galt Smith & Co., New York. Mr. Apsley presented the case so convincingly that the committee acceded to the request of the committee and incorporated it into the tariff bill which received the approval of the House. When the bill was taken up by the Senate, however, it was referred to the Finance Committee and among the changes made by that body was the complete nullification of the work of Mr. Apsley's committee. This reverse only stimulated Mr. Apsley to renewed efforts, and he at once summoned his committee to return with him to Washington. A hearing was obtained before the Finance Committee and Mr. Apsley was again asked to present his arguments. His success in satisfying the committee is proven by the protection which was accorded to this industry in the bill which soon after became a law and is now in force.

It has the Appearance of Hard Rubber.

A GREAT deal of ingenuity, time and money have been spent for a number of years past upon different processes for treating wood pulp. An English firm has recently discovered a manner of hardening the pulp in steel molds under enormous pressure that is giving surprising results. The product that they got looked very much like hard rubber, and had many of the excellencies of metal. When a small quantity of graphite was added to the compound it was found that for bearings it had no equal, as shafts have been run on them months and no oil used at all. It is said indeed that the friction is reduced about one-third over any metal now in use.

Shoe-Heels of Rubber.

IN order to prevent sudden jars to the body when walking an inventor has secured a patent for the ingenious arrangement shown in the accompanying illustration. The heel of the boot or shoe has a cut-out portion in the center, in which is inserted a filling of elastic material, like rubber. Covering this material and extending to the leather portion of the heel is a metallic plate, which contains two holes for the passage of projections imbedded in the rubber. When walking these projections come in contact with the pavement and relieve the body of the shock that usually occurs in the ordinary form of leather heel.—*Philadelphia Record.*



RUBBER AUCTIONS AND F. H. NAZRO—I.

By De Witt G. Ray.

THE writer has been requested by the conductors of this journal to prepare an estimate of President Nazro, of the Boston Boot and Shoe Club. The commission is accepted with a willingness akin to enthusiasm. If it be true that the subject which pleases us is the subject which we can handle best, this estimate of Mr. Nazro ought to take high rank. For where is the man in the rubber boot and shoe trade, whom Fred. H. Nazro has not pleased? At the very beginning let this biographer confess that he does not know where or when Mr. Nazro was born. If compelled to make an estimate regarding his age I should observe, as did Bill Nye to a friend whom he desired to compliment:

"I don't know how old you are, but you don't look it."

No, Mr. Nazro does not look it. Turning back the tablets of memory I find a notation regarding him in the year 1870. It is in connection with an auction-sale of rubbers—the first rubber auction-sale of any note. It was conducted under the auspices of J. H. Lester & Co., of Pearl street, Boston, and the advertising poster proclaimed with great profusion of jet black printer's ink that Lester & Co. would sell—

AT AUCTION SALE.

FOR THE HYATT RUBBER CO.,

40,000 PAIRS OF RUBBERS.

The auctioneer was our mutual friend F. H. Nazro, then only a clerk for J. H. Lester & Co. Forty thousand *pairs;* not cases. Twenty-two years ago only, and 40,000 pairs of rubbers, to be closed out at a single sale, looked large in the eyes of the trade; but, imagine, if you can, how much larger those figures looked in the eyes of the clerk who must sell them.

The sale was made. So was the clerk.

In 1871 a combination was made of the Hayward, National, Goodyear, Boston, New Brunswick, Meyer, and New Jersey companies. J. H. Lester & Co. were requested to conduct eight auction-sales by the companies named—four to be held in Boston and four in New York. It would never do to send a clerk to New York to represent Lester & Co. By the same token it would never do to send anyone but Nazro; and thus it happened that he shook off the chrysalis of clerkship and emerged a full-grown auctioneer.

These sales marked a distinct advance in the rubber industry. The auctioneers announced that 300,000 pairs would be sold in Boston the first week, to be followed by a sale of 300,000 pairs in New York on the week following and then alternating. Mr. Nazro sold, during that series of eight sales, over 2,000,000 pairs of rubbers.

The companies thought that he had won his spurs and this conviction they emphasized by presenting him with a costly gold watch of Waltham manufacture. To this the agents of the companies attached a handsome chain and the timepiece and its keeper Mr. Nazro has carried for twenty-one years.

From 1871 to 1877 these sales continued annually. Some realized $100,000; others amounted to $500,000. In 1877, owing to the condition of the rubber market, some of the companies came together and decided to have auction-sales at regular intervals. These sales, the companies thought, would partially establish prices and show the several participating corporations "where they stood." The companies were the Boston, Candee, National, Goodyear, Hayward, New Brunswick, Meyer, Woonsocket, and New Jersey. Three sales were held in 1877 and as the result 6,000,000 pairs of rubbers were knocked down to the highest bidder. It was in 1877 that the phraseology of the advertisements was changed from "pairs" to cases. The auctioneer who had been well-nigh dismayed by the contemplation of 40,000 pairs, now passed by the billboards and contemplated—

From 125,000 to 150,000 Cases

—without a tremor. By 1877 the firm of J. H. Lester & Co. had passed through successive evolutions; from Lester, Johnson & Moody to Johnson, Moody & Co., Mr. Nazro becoming a partner. Rubber sales of "seconds," blistered goods and goods not blistered have continued for the fifteen years intervening and it is but a chronicle of fact to write that every sale has been made pleasanter and therefore more profitable through the personality of the gentleman whose advance from clerk to auctioneer, to partner and finally to the presidency has been here hurriedly sketched.

If the column-rules of THE INDIA RUBBER WORLD were elastic; if the "chases" which mark the boundary lines of the pages were susceptible of distension; if time, space and other duties permitted, nothing would afford me greater pleasure than to present plans and specifications in connection with this estimate of Mr. Nazro. The incidents of the rubber sales which he has conducted are curious, humorous, entertaining; interesting, never commonplace, because of the "thought behind the eye" which Fred. Nazro transfers so rapidly to "the tip of his tongue."

There is, however, one phase of his work which, I fear, is sometimes ignored. I allude to his energy. A friend has characterized him as "a human locomotive," and it is a fit definition. Granted that his fancy is playful and his wit keen; granted that he never fails to keep his auditors in good humor. These are the mental and brainy phases of his success. He has been able to utilize them and make them effective only through the possession of strong physical powers and that quality which is termed nerve. His nerve and endurance have gone hand in hand with his wit, his repartee, his raillery which leaves no sting.

Years ago when he made his debut in New York an

attempt was made to "rattle" him. Ridiculously low offers were made by one individual—offers which would have exasperated most men. Mr. Nazro finally turned to his persecutor and good-naturedly asked his name.

"Mr. Smith, at your service," replied the enemy, lifting his hat and disclosing a closely "cropped" head of hair.

"Why, my dear Mr. Smith, I beg your pardon! I knew there was something out about you and now I see; just out of Sing Sing."

At the conclusion of the sale "Smith" made the acquaintance of the auctioneer, apologized for attempting to "monkey with the buzz-saw" and the two remained friends until the death of "Smith" a few years ago.

In one year Mr. Nazro sold at auction for the associated rubber-shoe companies mentioned over $6,000,000 worth of merchandise. A sale continuing ten hours was not an event of unusual occurrence, with of course an intermission for lunch. Such lunches, too! Some of these banquets would cost $1000.

[*TO BE CONTINUED.*]

A New Rubber-Clothing Company.

THE plant and all the appliances of the old Standard Rubber Co, at Campello, Mass., have been purchased by the Standard Company, of Brockton, incorporated under the laws of Massachusetts, with $50,000 capital, all paid in, for the manufacture of rubber clothing. The purchase was made on March 14, and possession was taken on March 22, when the mills were closed for a few days for the making of necessary repairs and to arrange for conducting the business under new auspices. Some improvements in machinery and buildings are under way, and work has already been resumed.

The president of the new company, W. W. Cross, is a prominent and wealthy citizen of Brockton, who is also president of the Columbian Manufacturing Co., vice-president of the Brockton National Bank, manager of the City Theater of Brockton and the Grand Opera-House of New Bedford, and proprietor of the firm of W. W. Cross & Co., nail manufacturers, besides being interested in other successful business enterprises. The treasurer of the Standard Co. is D. J. Pierce, one of Weymouth's largest real estate holders and a conservative man with practical business experience. The vice-president and general manager is B. F. Pennington, formerly of Pittsburgh, who has been actively and successfully engaged in business from an early age, having had an experience of nearly four years in the rubber business. He has full charge of the company's affairs, with the exception of the finances, which the treasurer will look after. The board of directors embraces, in addition to the officers mentioned, two Boston gentlemen of means—Calvin Austin, general agent of the Boston and Bangor Steamship Co., and B. J. Remick, of the firm of William Shipman & Co. R. S. Beale has been secured as superintendent. Mr. Beale has had ten years practical experience in the rubber business, and has been for several years past with the old Standard Rubber Co.

The plant is capable of employing from 140 to 160 hands when running at full capacity. It is proposed to carry an attractive line of goods, turning out only such products as will hold a trade once started. All classes of rubber clothing will be made, from the plain circular and cheap rubber coat to the finest single and double textures. The policy of the company will be not to try to carry the largest line possible but to watch the changes in demand closely so as to have always something new to offer. The company have already established sales offices at No. 67 Chauncey street, Boston, and No. 51 Leonard street, New York, and they expect shortly to open one in Chicago. The company's address is Brockton, Mass.

A Great Western Jobbing-House.

AN example of the rapid growth in the Far West and Northwest of enormous depots for supplying the trade of those sections in almost every line of goods is offered by the Missoula Mercantile Co., at Missoula, Mont., who, although incorporated with a modest capital in 1886, now report a paid-up capital of $1,200,000. They do a general mercantile business, occupying an entire block in Missoula, besides branch houses in five other towns in Missoula County, and employing some 300 men. The business of the concern is divided into eight departments, each under a manager who is responsible to the general manager of the company. The officers of the company are A. B. Hammond, president; C. H. McLeod, vice-president and manager; Gust. Moser, secretary, and H. C. Keith, secretary. The company are now extending their trade in rubber goods, respecting which the manager of the shoe department, Mr. Fred. W. Jones, who is also a stockholder in the house, writes to THE INDIA RUBBER WORLD:

"We are Northwest agents for the Woonsocket Rubber Co., at Missoula, which is the recognized distributing-point for a large area of country, comprising that portion of Idaho known as the Coeur D'Alenes and Western Montana. We handle, almost exclusively, Wconsockets, to the extent of $50,000 annually, 60 per cent. of which is on lumbermen's all-gum solid-heel goods, and lumbermen's snow-excluders and dull and bright finished boots. Our blanket orders are invariably placed before March 10, and detailed by the 15th of the same month, thus enabling the rubber factories to get our goods out promptly, and thereby place us in a position to insure prompt and satis factory service to our customers. With the extensive alterations recently made in our premises, which our increasing business demanded, we shall be able to handle our rubber business for next season with a feature of promptness and dispatch. We have an extensive trade in rubber clothing, and especially in miners' rubber coats, shirts and hats, all of which is handled at our premises, which are devoted entirely to our jobbing trade."

RECENT DEATHS IN THE RUBBER TRADE.

JAMES R. WHITEHEAD, president of the Whitehead Brothers Rubber Co., died at his residence in Trenton, N. J., after an illness of three months, on Sunday, April 3. Mr. Whitehead came from a manufacturing family, his father and grandfather having been owners of cotton-mills in England, and Whitehead Brothers were cotton manufacturers in Trenton until about the close of the Civil War, when they changed their plant into a rubber-factory, wherein were originated many of the processes and machines used in the manufacture of mechanical rubber goods. Mr. Whitehead was a man of charming presence and kindly manners, and he will be especially missed by the members of the travelling fraternity, to whom he was uniformly courteous, and who received from him quite as much consideration as *buyers;* a trait which might be emulated with much profit by a good many men in his position. Mr. Whitehead was a man of rare business ability and forethought, and his dealings were upon the broad and liberal scale of a gentleman who knew not meanness and scorned deceit. He was widely known in the trade, and commanded the respect of all men. A widow and two sons survive him.

* * *

HEZEKIAH S. CHASE, the largest stockholder of the Evans Artificial Leather Co., and senior member of the firm of Chase, Merritt & Co., Boston, died March 17 at the age of eighty-seven years. He was at the time of his death the oldest member of the shoe trade in Boston, and had an active business experience of nearly seventy years. He was born in Haverhill in 1805. At the age of twenty years he embarked in business on his own account, building up in a few years the largest dry-goods jobbing house in New England. As the shoe industry developed his dry-goods business was gradually merged into the specialty of shoe findings and the sale of boots and shoes. Supplies were imported almost exclusively at that time, and the desire to utilize domestic cottons led him to originate the idea of bleaching, calendering and finishing his own ducks, drills and linings for the manufacture of shoes. He was interested in the development of the copper tip which was so popular in children's shoes, and also helped to develop the Goodyear welt and sewing machine. For the last eight years he was totally blind, but full of energy and possessed of a wonderfully cheerful spirit. Mr. Chase was noted not only for his practical business ability, but for his great sympathy and helpfulness toward all the deserving, and both his time and money were freely given to the church, institutions of learning and to workers for humanity, both at home and abroad. He had many friends and business associates in the rubber industry, who will greatly feel his loss.

* * *

C. PERCIVAL CLANCY, a young man who occupied the position of confidential clerk with the Norton Rubber Co., Boston, Mass., was accidentally shot and killed while out on a gunning expedition on March 12. Mr. Clancy was a very promising young man and held a position of much responsibility for one who had but just attained his majority. He was well known in the trade and the news of his sudden death was received with sincere regret.

* * *

CAPT. HOSEA EDMANDS, father of the wife of Hon. Elisha S. Converse, of the Boston Rubber Shoe Co., died at Malden, Mass., on March 25, at the age of ninety-four years.

* * *

DANIEL P. DIETRICH, the well-known Philadelphia rubber merchant, proprietor of Goodyear's rubber store at No. 308 Chestnut street, died March 31 after a week's illness from pneumonia. Mr. Dietrich was one of Philadelphia's most progressive business men. He was a native of New York and was employed in the first rubber store ever opened in that city. Subsequently he became associated with Charles Goodyear, the inventor of the famous Goodyear vulcanite rubber, and when he removed to Philadelphia in 1850 he established the business on Chestnut street, below the old Exchange Place, which grew to its present proportions through the proprietor's indefatigable business enterprise. The firm title was the Goodyear Rubber Belting and Packing Co. Mr. Dietrich's grandfather, a baker, was the first employer of John Jacob Astor after the latter's arrival in this country. The dead merchant, who was fifty-eight years of age, was a member of the Manufacturers' Club, and also belonged to the Masonic fraternity. His wife survives him, but he was without children. R. M. Popham, his half brother, was associated with him in business, and he had also two widowed sisters, one resident in Philadelphia and the other in New York.

Valuable and Interesting Reports.

AT the instigation of the editor of THE INDIA RUBBER WORLD, the Department of State, through the Consular offices, has been engaged in making some extended researches into the rubber industry of the world. These reports are valuable and interesting, and great praise is due our contemporary for the effort put forth to secure these reports, by which the extent of rubber forests of the world has been demonstrated to be so extensive that any possibility of cornering the crude-rubber supply is impracticable; that the once-threatened extinction of the rubber forests is apt now to be checked by governmental precautions against wasteful methods of gathering rubber, and that new sources of gutta-percha supplies have been discovered which will prevent a scarcity of this commodity, and thus encourage the building of ocean cables.—*American Grocer* (*New York*).

Chicle as an Insulating Substance.

AN account has been received of the production and exportation of chicle in the States of Campeche and Yucatan, Mexico. Chicle, the sap of the sapotille tree, is extracted like camphor, India-rubber and other gum, and the entire output, amounting to something like 50,000 pounds last year, is exported to the United States, where it enters into the manufacture of chewing-gum. The market value of chicle is 1s. 3d. per pound. Chicle is an insoluble substance, and it is said to be now used extensively as an insulator, replacing India-rubber.

COLLECTING AND RECOVERING WASTE RUBBER.

By I. A. Sherman.

THE business of securing waste rubber and recovering it obtained its impetus soon after the expiration of the Goodyear patents. Before that time the scrap, particularly that which was vulcanized, had been burned under the boilers or thrown away. The old Hayward company made a road through a swamp of heel-trimmings and other vulcanized scrap. A quantity which would now be worth many hundreds of thousands of dollars has been dumped over the docks or buried in the ground to get it out of the way. As the manufacture of rubber increased in importance, and natural competition became more severe, the price of crude rubber constantly appreciated. The inventive faculty of the manufacturer was exercised therefore to find various ingredients and adulterants that would make the goods cheaper. Of all the materials used in rubber compounding none were found to be as effective as recovered rubber, and this for the simple reason that when carefully prepared it *is* rubber. There are those who think, in buying rubber goods, that any percentage of "shoddy" in the compound is a disadvantage. If these people were aware that mold-work of the lower grades is often made of shoddy with no addition of pure rubber, they would perhaps awaken to the fact that a certain percentage of this same shoddy would be far better in good goods than would an equal or perhaps larger amount of whiting or lamp-black. It is true, however, that while the amalgamation of waste rubber with pure gum is an advantage, it can reach a point where it becomes a positive injury to the goods and to the trade, and a permanent source of annoyance for both manufacturer and retailer.

The purchaser of a pair of rubber shoes apparently can see little difference between that which costs twenty-five cents and that which may cost $1.25 a pair, and the most eloquent salesman finds it difficult to point out the difference. On the other hand, if goods were made entirely of pure gum they would be too elastic and would draw the feet, besides being so costly that the ordinary consumer could not afford them. It is by the most careful working of waste with "live" material that the best goods are obtained at a price that any one can reach. The abuse comes in when the maker, forced by competition, allows his cupidity or embarrassment to obtain the better of his judgment and to so load the goods with shoddy that they have little or no wear. The career of the rubber car-spring business is a good illustration of this sort of folly. It is acknowledged that there is no better material in the world for car-springs than rubber, and to-day the railroads would be using little else had the manufacturers kept up the quality of the goods. In an evil hour, however, they began to cut prices and to do this without loss they were forced to lower the quality of the goods. This was kept up until the railroad men became disgusted and, as a whole, gave up the rubber spring. To-day its use is chiefly among electric men and those who made a specialty of rubber car-springs have turned their attention to other specialties.

Waste rubber is gathered in all sections of this country and also in Europe, although more is gathered in the United States than abroad. This is perhaps because the people in this country are far better shod than those in other countries. The familiar Italian in New York City, with hook and bag, who prowls around the morning ash-barrel is the pioneer in this collection of bits of waste rubber. He selects the old shoes and occasional water-bottles, and sometimes a rubber waterproof, and takes them all to a junk-dealer, who in turn delivers them to the dealers of higher degree. Many of the rubber-mills also have quantities of vulcanized scrap that they sell to those who make the business of grinding and recovering. The wholesaler of rubber scrap classifies his goods as follows: Pure, two qualities of white, boots and shoes, springs, packing, hose, red rubber and unvulcanized rubber. Of the scrap that is thus gathered by far a large proportion of it is old boots and shoes. These are sorted roughly, put up in bales and shipped to the companies who make a business of reclaiming.

Briefly described, the process of reclaiming old rubber boots and shoes is as follows: By the mechanical process the boots and shoes are thrown into a machine known as a "cracker," and are roughly torn to pieces, the workman picking out any pieces of brass that he may see. From this they go to a grinding mill with a very decided friction motion which grinds the product to a fine powder. It is then passed through an air-blast to remove the fiber and the black powder is then run over a machine fitted with a series of magnets which removes the iron. It has been found that grinding waste rubber in water has greatly increased its life, which opens up a field for interesting experiment on the part of rubber-men. The black powder is next put in iron pans, run into a vulcanizer and exposed to live steam for a number of hours at a temperature varying from 400° to 600° F. The steam heat volatilizes the sulphur, whence the term "devulcanization." When the shoddy is taken out of the vulcanizer it may be put on a grinder, when it will readily form in sheets and has very much the appearance of compounded stock that is unvulcanized. A more modern process and one that gives excellent results is what is known as the acid process. In this, instead of removing fiber by the air-blast, it is destroyed by a weak acid solution in which the shoddy is boiled. Of course, for various kinds of rubber work there would be other shoddies than the boot and shoe shoddy: for example hard-rubber sawdust and turnings are used largely in hard-rubber work and pure gum is often ground to a fine powder and used in stock that is to be very

springy. Pure rubber, however, cannot be easily devulcanized. There are also those who make a business of purchasing the unvulcanized scrap from rubber-clothing manufacturers, soaking the cloth in benzine, peeling off the rubber, and selling it back to the manufacturers.

The business of gathering shoddy is a large one and the transactions involve contracts of two and three hundred tons a seasons for a single manufacturer. Shipments are often made as large as fifty and sixty tons at a time. It will hardly be just to say that all rubber-manufacturers use shoddy, for they do not. There are, however, few lines of goods in which recovered rubber cannot be used and that, too, with a certain advantage. In no line of business is there more system than in the recovered-rubber business. Practically the waste out of an ash-barrel is as free as the water in the river. At the same time it costs even to collect it. After the rough work of gathering is over the steps in manufacturing are most carefully planned and until it reaches the factory where it is to be used there is no chance for exorbitant profit in any of the processes of manufacture. So close is the competition that oftentimes the rate of freight will spoil the trade of certain factories. Taken as a whole, the business is a peculiar and not particularly pleasant but exceedingly important one.

NEARLY SIXTY YEARS A RUBBER-MAN.

By A. C. Eddy, a Retired Manufacturer.

THE first experience I had with the rubber business was in 1833, with George O. Bourn, who had a shoe store with a boot-and-shoe factory connected with it, at No. 69 Westminster street, Providence, R. I. The Pará rubber shoes at the time were imported in large coarse pine boxes, something after the old-style sugar-boxes. My first work was to unpack these cases, wash the shoes, and put them on lasts to keep them in shape for the retail trade. The next year, I lined a lot of ladies' rubbers with cotton-flannel, with leather inner soles and counters.

I continued more or less in this line of work until 1839, when Mr. Bourn formed a copartnership with Mr. David L. Winslow for the purpose of manufacturing rubber shoes. Their factory was in the rear of Green street, Providence, occupying a part of Mr. Thomas M. Barker's chair factory. Their shoes were made from Pará rubber, dissolved in spirits of turpentine, with all the lampblack mixed with it that it would hold, and nothing else. These shoes were made up in buskin shape, mostly with leather soles, but some few had rubber soles. In this factory I did the mixing and cutting. These shoes had a fair run for two seasons. Then the acid shoe, so called, made of rubber, lined with grass cloth, and tanned in acid, seemed to take the market, but they too soon had to give way to the metallic shoe, which has held the market ever since. Consequently Bourn & Winslow closed their factory and dissolved copartnership. In 1843, Mr. Bourn commenced making pure rubber shoes, at his factory on Westminster street. The rubber used for this purpose was imported in sheets 20 to 28 inches square, about one-sixteenth of an inch thick, more or less. These shoes were made mostly in the sandal form with leather soles and heels, rubber shank, and leather strap across the instep. They were a very desirable shoe and commanded good prices.

While I was thus engaged for Mr. Bourn, John Thornley sent for me to come to Philadelphia, to make the same style for him. As he offered greater inducements, I went at once, on November 1, 1843. Mr. Thornley's rubber store and factory at that time was on Chestnut street above Fourth, north side, in a narrow four-story brick building. The store was on the first floor, and the stock and cutting room on the second, while the third and fourth floors were used for the making-up department. Nearly all the goods sold in the store were manufactured by himself, and he did a large business in making specialties to order. Mr. Thornley was a good mechanic, and could make, with his own hands, almost any article of pure rubber that might be called for. He made a number of articles from pure sheet rubber that are at the present day on the list of druggists'-sundries, and are now made with white compounds, and vulcanized in molds. While I was with Mr. Thornley I got my first insight into this line of business.

I left his employment in March, 1845, and went with Levick, Jenkins & Co., boot-and-shoe dealers on Market street above Fourth, south side. They were among the largest dealers in Philadelphia, in their line, and sold large quantities of rubber shoes. While I was with this house the Providence Rubber Co. were organized. Between the seasons of spring and fall trade I sold their metallic-rubber shoes, and in July, 1853, was appointed their agent and left Levick, Jenkins & Co., taking a store on Fourth street nearly opposite Commerce street, and for two years did a good business, and then had an injunction placed on me, and closed the agency.

I had spent all my leisure time, for a number of years, at the Providence company's factory, and I went there on leaving Philadelphia. In November, 1857, I decided to start a rubber store in Providence, the firm being Garfield & Eddy. We selected the store No. 15 Westminster street, and stocked it with every article in the rubber line then on the market, and at the same time rented a room from the Providence Rubber Co. in which to make druggists'-sundries, they furnishing us with the stock needed as we wanted it. The first articles we made were single and double-neck syringes. For these we used the triple compound, rubber, sulphur and litharge, and vulcanized in molds. They were dark-colored and would not fill as promptly as we would like, but we continued making them for six months or more, and found ready sale for them.

About this time Mr. Horace H. Day, of New York, called on us at our store. He saw some of the syringes we had made and suggested that we make them of white compound which would give them a more sightly appearance, and stated that he was the owner of a patent for using such a compound and would let us have a license to use it on reasonable terms. We agreed to take one, and pay him six cents tariff for every syringe we made. We received the license in a few days, and with it a receipt for the compound, which was composed of rubber, sulphur, whiting and zinc. I, having the special charge of our factory, had a small batch mixed with the quantity of each article as stated in the receipt, and made one bulb from it. No dealer in druggists'-sundries could have told what it was intended for, if he had seen it, when I took it out of the mold. It reminded me of the man that paid $5 for a parrot's egg and it hatched out a crow. I had got as near what I bargained for as he did. However, by reducing the quantity of zinc and whiting to one third of the amount specified in the receipt, I got a very satisfactory product. A short time after this Mr. Day made some kind of a deal with the Goodyear interest, by which he was not to contend against the Goodyear patents. By the contract we had made with him he was to defend us in all suits brought against us. To enable him to carry out his part of the deal he wanted us to give up our license and contract, and as an inducement offered to return all the money we had paid him. This we gladly accepted. By this time we had changed the appearance of our product by using the imported zinc and whiting instead of the domestic. This made a great improvement in the color, and also produced a finer surface. By 1859 we were well established.

Among those whom we received large orders from were Charles Davidson, of Charlestown, Mass.; Mowry & Smith, of Boston; Dr. M. Mattson, of New York; Davol Rubber Co., of Providence, R. I.; Goodyear Rubber Co., of New York, and a number of smaller dealers. In 1865, J. M. and T. E. Studley bought out Mr. Garfield's interest, and the name of the firm was changed to A. C. Eddy & Studley. In 1883 I sold my interest to the Studleys, who continue the business under the name of Studley Brothers at No. 39 Westminster street, Providence.

ASPHALT IN INDIA-RUBBER COMPOUNDS.

FROM the beginning of the rubber business manufacturers have appreciated the use of asphalt and tar in a variety of rubber compounds. Especially has this been true in goods cured in what is known as the dry heat. Boots and shoes, clothing and insulated-wire compounds to-day all have a certain percentage of what is known as tar, but which is usually purified asphalt. The common belief that the goods are injured by the addition of this substance is wholly erroneous; a certain amount of asphalt compounded with rubber assists in calendering and during vulcanization imparts a certain toughness to the rubber which is not to be gained in any other way. The proportion used to-day is but small—for example what would be known as a rich compound is 18 pounds coarse Pará, 11 pounds litharge, 40 pounds whiting, 3 pounds asphalt, ½ pound lampblack, 11½ ounces sulphur. Exactly what asphalt is very few people seem to know, and it is almost invariably in the popular mind confused with coal-tar. Asphalt as a paving material has been known since the Babylonian empire, and to-day paving-blocks are found that preserve their integrity and have hardly begun to oxidize in spite of the atmospheric changes to which they have been exposed. It is only within late years that asphalt has been well known in the United States. It looks very much like pitch, and when ignited burns with a bright flame, giving off a dense black smoke. Alcohol, ether, oil of turpentine, naphtha and many other reagents easily dissolve it. Its specific gravity is 2.23.

Until very recently all the real asphalt used in this country was imported. There is in the island of Trinidad a lake nearly two miles in circumference which is the source of the most of it, and it is said that near the shore the asphalt is very hard, but out in the center it is soft and viscid. When imported to the United States it comes mixed with sand and gravel and a variety of foreign materials from which it is separated by heating over a slow fire for a week or more. During this heating process the impurities of a lighter nature rise to the top and are skimmed off, while the heavier substances settle to the bottom of the receptacle. There are very large deposits of asphalt in France and Switzerland, and within the last three years quite extensive deposits have been discovered in Utah and California, and small ones in Kentucky. For paving streets it is prepared by grinding first to a powder and mixed with crude petroleum and fine sand. It is then molded into blocks of suitable size, or sometimes it is poured between blocks of paving stones, when it becomes hard, and greatly resembles the natural rock.

Another use for asphalt is in the manufacture of black varnish, where it is dissolved in oil of turpentine and linseed oil and makes an exceedingly durable coating. For insulating electric-wires this sort of coating has been found of great use, and it is said that one of the best rubbers for wires to-day manufactured is made of a fine compound containing 30 per cent. of India-rubber, the compound after semi-vulcanization being dipped in boiling asphalt, which toughens it exceedingly. As asphalt is not affected by acids or gases, and is an absolutely waterproof compound, and as heat and cold do not affect it, it is a valuable article to use in connection with India-rubber, although if too large quantities of it are put in, it shortens the gum and may during the process of vulcanization cause it to blister. A great deal of the gum roofing sold in the United States which is thought to be India-rubber or Gutta-percha is made simply from a solution of asphalt spread upon prepared paper.

THE LATE EUGENE H. CLAPP.

PROBABLY no man was better known to the rubber trade in this country than the late Eugene H. Clapp. Although his business interests outside of that particulalar field were very large, yet he got his start in life from his rubber-mill, and from it not only made a great deal of money, but formed connections with the largest and most influential rubber-manufacturers in the world. Mr. Clapp was a native of Massachusetts, and was born in South Scituate, October 11, 1843. The beginning of his education was received in the common schools of his native town, at the academy at Hanover, Mass., to be completed in a remarkably active business career. His first situation was in a metal store in Boston, where he began work in 1861 on a very small salary. He always worked his own way upward; when at school he paid his tuition by raising small-fruits for market and by working on a farm. So energetic a young man was not destined long to be employed by others and soon after his first business engagement he started out for himself. In the old metal-and-paper trade he did a small but lucrative business for some years, when he became acquainted with James Bennett Forsyth, of the Boston Belting Co. In the course of a conversation Mr. Clapp spoke of his desire to enlarge his business. From this and subsequent conversations came the rubber-mill at Hanover, Mass., at first only a small plant.

Mr. Forsyth and Mr. Clapp, who were life-long friends, together laid out the plans for the mill, the latter purchasing some grinders from the Belting company, and taking his first order for stock from them. Throwing his whole energy into the business, Mr. Clapp soon discovered that the business of recovering rubber was very crude and he began to experiment and study how to improve upon it. After a time he hit upon a simple plan for removing the fiber from the ground rubber by means of an air-blast. This put his stock far ahead of any other and enabled him to sell it for uses for which it had been unfit before. Knowing that the secret was a very valuable one, he let only a very few of his most intimate friends in the rubber trade into it, and had watchmen patrol his mill night and day. For a long time it did not become known outside how he produced such fine stock, but finally one of his workmen revealed it. Other processes that Mr. Clapp invented he was able to keep secret by taking extra precautions.

When wood-fiber began to be used in paper-manufacture Mr. Clapp saw that it was going to be a large and lucrative business and he was one of the first to go into it on a large scale. Two companies were owned by him and his associates, the Piscatagua Pulp and Fiber Co. and the Penobscot Chemical Fiber Co., both of which now have large plants in the State of Maine.

The three manufacturing plants just mentioned comprise but a portion of his interests. He was director in twenty-three corporations and president of six. Indeed, at the time of his death he was identified with no less than thirty-six organizations, chiefly of a business nature. He was a prominent Mason and Odd-Fellow, was Colonel in the Ancient and Honorable Artillery Co. and a member of Massachusetts Division, No. 71, Sons of Temperance. He was also a Good Templar and served for two years as M. W. T. in the Temple of Honor. Mr. Clapp was a prominent third-party man, often presided at important Prohibition meetings, and was a vigorous and interesting speaker. He could without doubt have been the nominee of his party for Governor of Massachusetts, but would not accept that honor. At the last temperance congress held at Saratoga he was the presiding officer, and each

year was one of the most liberal in contributing to the campaign funds. He was a regular visitor to the Rangeley lakes for many years, rarely missing a season altogether, and often paying two visits in a year. The annual trip of the Eugene Clapp party was one of the features of the season. This party has many times been made up of Mr. Clapp, G. W. Wadsworth, C. E. Haskins, W. Paine and a brother of Mr. Clapp.

He was a man of strong individuality, a firm friend, and one whose word was as good as his bond. He always worked at high-pressure and without doubt hastened his death by refusing to drop business when his health was threatened. He was seized some two months ago while in New York with nervous prostration, and was at once taken to his home in Roxbury. Since then he had been slowly improving, and latterly was gaining more rapidly. But suddenly on Saturday evening, March 12, after seeing a few friends, he complained of violent pain in his head, and soon breathed his last.

Mr. Clapp was worth about a million dollars at the time of his death. A widow and three children mourn him. By the terms of his will the rubber business at Hanover is to be made a stock company and run by his brother, Arthur Clapp. The funeral services took place at Emanuel Church, Roxbury, Mass., on March 16, and were attended by well-known business men from all parts of New England. Numbers of the prominent rubber-manufacturers were present as friends and mourners. At the sixth annual banquet of the Paper-Trade Association held soon after his death the following resolutions were adopted:

"*Resolved*, that in the sudden death of our fellow-member, Eugene H. Clapp, the Boston Paper-Trade Association mourns with unfeigned sorrow the loss of one of its most active and earnest associates.

"His sound judgment, genial disposition and uncompromising adherence to principle commanded our respect and friendship.

"We desire to record our appreciation of his ability, integrity and character, and to give expression to our sympathy with the wife and family of our departed friend in their irreparable loss.

"*Resolved*, that the secretary be directed to send a copy of this vote to the family of the deceased."

The Rubber Manufacturers' Mutual Insurance Co., of which Mr. Clapp was vice-president, and in which he took a deep and active interest, at a special meeting adopted appropriate resolutions.

THE USE OF RUBBER FOR BICYCLES.

THERE is a steady growth in the demand for rubber from bicycle-manufacturers, and in the last few months it has become noticeably large. It was estimated a year ago that the consumption in this direction had reached the rate of 1,000,000 pounds a year, and there are those in the trade who think that the figures have since doubled. So important has the business become that one large bicycle concern has constructed a rubber factory complete, another quite absorbs the entire product of a large concern, and one of the largest rubber companies in the country devotes a considerable portion of its space to the manufacture of tires for the demands of several makers.

The rubber tire has had several evolutions, two of them being used in this country pratically for the first time within the past few months. For a long time the old solid cushion held its sway, and to-day it has its votaries, the principal objection to it being its small amount of surface and a rigidity which communicated every vibration to the rider as he passed over inequalities in the road. This tire was used on the old velocipede, and upon the second introduction of the bicycle into this country about fifteen years ago it came along with it. Little improvement has been made in it, and naturally poor and good rubber, especially in its early days, had their turn, to the disgust or pleasure of the bicycle owner. About a year ago came the cushion-tire, which possessed important advantages, it was claimed, but to many minds they were fictitious. It took up the vibration to a certain extent, but as the wheel passed over the ground the soft cushion in front of the part in contact became depressed and the peculiarity of "riding up-hill," as it is called, became apparent, and a greater effort was required to propel the wheel. The inner walls of the cushion by this constant depression were subject to continual wear and cracks developed which lessened the lasting qualities of the tire. Many devices to remedy this evil were invented, some with a solid tire inside, and others with peculiar form of the air-chambers inside, which remedied to a large extent this evil, and such tires are in use to-day, and well liked.

The second evolution which has developed in this country within the past few months is the "pneumatic," and it has come into popular favor so rapidly as to be called by many a "craze." In its simple form it consists of a rubber tube filled with air by mechanical means and by its elasticity decreasing to the minimum the effect of the vibration of the wheel on the rider. It is stated that whatever depression there may be in front of the contact with the ground forces the air to the rear and assists the rider, but this theory only receives a partial acquiescence. It is certain, however, that its large surface contact makes it an easy-riding wheel and that it is more speedy when compared by diameters than those forms which it is meant to supersede. Its objection is that it is more or less liable to deflation, and seriously liable to puncture in coming in contact with broken glass, sharp stones, and like articles. When this occurs the wheel is useless until repaired and for long-distance riding this has been a serious defect which inventors have been endeavoring to overcome. The rider, miles out on a lonely road with a disabled wheel, is a subject of peculiar commiseration, and when caught in this plight is often convinced that after all the reliable solid or cushion tire is the best. The repairing of the complicated forms of this tire can only be done by a skilled mechanic a serious drawback in itself.

There are so many forms of the pneumatic tire as to

make their enumeration and description peculiarly embarrassing, but the majority of them appear to have one end in view, the reducing to a minimum the chances of perforation. Roughly they can be divided into four classes. The first, of which the Dunlap is an example, consists of a canvas envelope in which the air-tube is concealed. By many this is considered the most speedy, its great objection being that when punctured the flap and canvas have to be cut and the inner tube removed. Another type is the Clincher, which consists of an outer cover thickened at the edges and clinched firmly into a projecting lip of the rim on the inside with an air tube encased. Both the outer and inner tubes have canvas insertions, which lessens the chances of puncture. Another class is found in those tires which are ingeniously laced on to the wheel with wire or other material, and some of them are of a very reliable nature. Another class is having what may be termed the hose-pipe tires. They are very simple, consisting of a tube with canvas insertion which gives it apparently the necessary rigidity. It is not the intention in this article to express an opinion as to the best tire, and this one probably has its drawbacks, but in the manufacture of common fire-hose there has been a degree of talent displayed in this country which has been slowly developed by experience. The two-and-a-half inch hose used by the Fire Department of the city of New York is four-ply, weighs nine-tenths of a pound per foot, and will sustain a pressure of 400 pounds. Naturally bicycle-tires have not reached so high a state of perfection, but it must be apparent what a range of capacity in the ordinary hose tube there is ahead for the manufacturer to obtain. These tires so far have answered their purpose very well. In their repair they certainly are superior to all others, the punctured hole being immediately filled up with a preparation of rubber and cement and allowed to harden.

As a rule the bicycle-men use the best of Pará rubber, admirably cured, some with antimony, and there is nothing of the cheap compound in use. The wear and tear is of a severe nature and as a wheel is as yet a costly article no dealer would willingly allow himself to suffer by imposition in this respect. Competition may yet bring cheaper compounds into the field, but now lightness and speed are qualities of the first importance, and cheap rubber will not fill the bill.

A year ago there were only twenty-seven bicycle-manufactories in this country against over 1200 in England, and as we catch up with that country in extent of production, it can readily be seen that this tire industry is found to be an important one and very profitable for many years to those engaged in it.

Machine vs. Manual Labor.

ABOUT forty men who have been employed by the Glendale elastic-fabric company of Easthampton, Mass., as goring-weavers, are out on a strike over the question of how much shall be paid for running a new weaving-machine. Three years ago George C. Moore, the superintendent, invented a machine which is the first radical advance in the method of weaving these goods. It is a "quick" machine, the shuttle making 110 "shoots" instead of from 60 to 70, as in the old machine. There are in the country about 400 weavers in what is known as the elastic goring-weavers' union of America, and the Glendale company is the only "free" shop of any size in the country. This union was organized about seven years ago, and the men of the Glendale company, until the new machine was invented, were members of this union. J. W. Green, Jr., the treasurer of the company, says that at that time he entered into an agreement with the men to pay them $15 a week for running the new machines with a bonus on extra work done, and they left the union and became "free" men. Furthermore the company entered into a combination with their competitors not to lower the price of goods because of their improved facilities, the plan being to divide the added profits between the men and the stockholders. About a year ago the men began to show that they were not as loyal as they had been to the company's interests. This was accounted for from the fact that a committee of the weavers' union had been sowing seeds of discontent among the operatives. This hobnobbing continued until the strike was brought about. The men tell another story. One of the leaders made this statement:

"We are now absolutely in the hands of this Glendale company. If any of our men are thrown out of employment they cannot get work elsewhere, as the weavers everywhere, except at the small Hopedale concern, are union men. Three years ago Mr. Green made a contract with picked men to pay $15 a week and good steady work, nothing to be a bar to this except a cotton famine. These machines are not a success, and we have to 'pick back' so much that some of our best men have not averaged $8 a week the past six months. All we ask is that 55 hours shall constitute a week's work and that the same list prices used by other manufacturers shall be used here."

It is understood that the weavers' union has agreed to stand back of these strikers, even if they are at present non-union men, and will pay each man $5 a week as long as the strike lasts. The facts and statements printed above are gleaned from the Springfield (Mass.) *Republican*.

A New Method of Securing Rubber Tires.

A COMMON objection to rubber wheels, notwithstanding their noiselessness and other advantages, has arisen simply from imperfections in the manufacture. Thus, according to one method in vogue, the manufacture has consisted in springing a ring of rubber on to a grooved wheel, but with the unfortunate liability of the rubber springing off as easily as it was put on, by a mere movement of the wheels sidewise, or, in some cases, when the rubber is not well vulcanized to the tire, it becomes loose from the wheel on being used. A new system of manufacture, however, is now being tried. By this two compressing metallic disks, each provided with a section of hub, peripheral flange and an annular rim of rubber, accomplish the feat of holding the rubber tire firmly. The latter is mounted on the shoulders of the disks, and firmly compressed between their flanges by means of screws, making it easy to replace worn-out rubbers, but rendering impossible their slipping off.

RUBBER-TREE CULTURE IN MEXICO.

By Senhor Don Matias Romero, Minister to the United States.

MEXICO offers a large field for the investment of capital. Her chains of mountains, traversing the country in different directions, abound in mines of all kinds of metals; her lands, located at different altitudes, and having all temperatures, are capable of yielding most bountiful crops of almost every product of the soil, and her manufactures are few and yet in their infancy. The precious metals have been and are still the main article of export of Mexico, but the depreciation of silver has produced the effect of stimulating somewhat agricultural production and export. Quite a number of coffee and other plantations have been started within the last few years in Chiapas, Oaxaca, Guerrero, Vera Cruz and several other States and they promise to be very remunerative, as land and labor are comparatively cheap and the soil is so rich that it requires no stimulus in the shape of phosphates or manure.

One of the undeveloped sources of wealth we have in Mexico is the planting of India-rubber trees. During my stay in Soconusco, in the State of Chiapas, near the boundary line with Guatemala, from 1873 to 1875, I had occasion to see thousands of wild rubber trees growing near the coast. The value of these trees, which were wantonly destroyed, even when young, in order to extract from them the juice which forms India-rubber, suggested to me the convenience of making a plantation, as I was sure they would soon be entirely exterminated, and I conceived the idea of starting one myself, and I bought to that end such land as I thought was suitable for that purpose. To make the plantation intelligently I applied myself to study all I could about the culture of India-rubber published at that time, and within my reach, which was little and very unsatisfactory. After I had obtained such information as was available to me and I had planted 100,000 trees, I concluded to write the result of my studies, but principally of my experience, in the shape of an article which was published in Spanish by several Mexican newspapers.

All authorities agree as to the falling off in the number of trees and the decrease in the exports of crude rubber owing to the wasteful methods of rubber-gathering. It appears that no serious attempts to grow India-rubber trees on a large scale have been made, so far as I know of.

The rubber tree, of which there are about 1500 species, belongs to the family of the Euphorbiaceas, and its botanical name is *Jatropha elastica*, according to Linnæus; *Siphonia elastica*, according to Persoon; *Siphonia cachuchu*, according to Scriber and Wildenow; *Hevea Guianensis*, according to Aublet, and *Echites corymbosa*, according to Jacquieu. It grows in America and in Asia, but although the plant in the latter place grows more than it does in the new world, its product is inferior in quality. It was first discovered, I think, in 1735 by some French astronomers sent to Peru, and although most of the rubber imported into Europe used to come from Pará, in Brazil, South America, large quantities are now shipped from Java, Penang, Singapore and Assam.

The trees I saw in Soconusco belong to the *Castilloa* species. They have silky green leaves in their upper part, the bark is of light color, the trunk of the largest trees measures about two meters in diameter or perhaps more, while on the top the branches extend twenty or twenty-five meters. The wood is white, spongy with large pores perceptible to the eye. It grows near the coast, in low damp lands, and requires a temperature of from 83° to 95° F.

A plantation of such trees should be made without any shade. It can be started according to the convenience of the planter, either by planting the seeds in nurseries—which would of course take a much longer time to grow—or by transplanting the young trees which now grow wild. They should be set at a distance apart of from two and a half to three meters. The most economical way would be to plant at the same time, for instance, cotton or corn, which grows and yields much faster than rubber, and will so reimburse the planter for the expenses of clearing the land and planting the rubber trees.

A plantation of 100,000 trees for instance would cost in Soconusco under the prices of land and labor which prevailed in 1873, which I think have not changed materially, as follows:

Cost of 450 acres of land at 10 cents each	$ 45 00
Cost of surveying same and securing title	45 00
Clearing the land	1,970 00
Sowing	985 00
Five weedings in six years at $982.50 each	4,912 50
Total	$7,957 50

The yearly product in juice of 100,000 trees would be, after the sixth or seventh year of planting, about six pounds per tree, or 600,000 pounds; less 56 per cent. lost in drying the juice to convert it to rubber, would be 264,000 pounds, which at 40 cents per pound would amount to $105,600. Deducting from this the expenses above mentioned ($7957.50) there would be a balance of $97,642.50.

Suppose the cost of the plantation to be double and the yield of the trees one-half of the amount estimated by me, the profit would yet be immense. The principal drawback is that in such districts as are suitable for India-rubber culture there is great scarcity or rather almost a total want of labor and that the climate is generally full of malaria, at least in so far as Mexico is concerned.

The supply of rubber in the accessible regions of the world is diminishing steadily while the demand for it is largely in the increase. Practical experiments in the cultivation of these trees, according to the official reports of the Bureau of Agriculture, have demonstrated beyond doubt that this industry can be established with profit.

Hundreds of thousands of rubber trees can be planted in Soconusco alone, and there is in Oaxaca, Tabasco, Vera Cruz, Guerrero and several other States of Mexico, plenty of land adapted to such a culture. I refer those wishing more information on this subject to my above-mentioned article which was published in Spanish in several newspapers of the City of Mexico.

Washington, D. C., February 12, 1892.

POWER-MEASUREMENTS OF RUBBER-MACHINERY.

By Francis H. Crane, S. B.

IT has often been remarked that the rubber business is in many ways more guess-work than head-work. This was, perhaps, truer a few years ago than it is to-day. Indeed the time has been when this was true of every line of manufacturing that the world has ever seen. There are to-day lines of manufacture in which an economy is practised that is not known to the rubber trade but that undoubtedly one day will be called for. It is possible that the time is not yet ripe for the careful figuring and cutting down of expenses that others practice, but it is well to know what the future may have in store.

In cotton-mills competition is so close that the manufacturer must know to a fraction of a cent what everything costs, and it may mean that cutting off an infinitely small waste will make the difference between profit and loss at the end of the year. For example, the power used by a spinning-frame is carefully and accurately measured. Were those frames in use in rubber-mills few manufacturers would know what power was required to run them. Probably they could not guess after they had been running in their mills for years, within two or three "horse" of the power there used. Such a state of affairs would be fatal to the cotton-manufacturer. He must know the power consumed for running a certain number of spindles, and if too much is used it must be at once cut down. A certain bright oil-salesman appreciating this condition of affairs turned himself into an expert for measuring the power used on spinning-frames and having an excellent oil he was able to prove that by using his goods he was able to save five per cent. in power. He did this in so many cases that it resulted in a large and constant trade for him. Another manufacturer, calling in an expert to measure his power, found that certain frames were using more than they ought. After hunting some time for the fault it was found that it lay in the shafting which, when lined up carefully, resulted in a saving of ten per cent. in the power. The expert is more and more called in in consultation on problems of this kind, and after advising the lining up of shafting or the proper tension on belts—which in itself is a matter of some little skill, for if the belt is too tight it pulls on the bearing and too much power is used, or if it is too loose it slips and does too little work—all these and many other things he is obliged to know and advise for the practical manufacturer.

There are rubber-mill superintendents who will put the indicator on an engine and get in a rough way the amount of power used by their machines, but it is so indirect and so often inaccurate, and they are so well aware of it, that the knowledge is of little value to them. It is perhaps not generally known among manufacturers that on any machine which is run by a pulley a little instrument known as a "power-scale" can be attached, which will accurately measure every bit of power used by the machine. That this will one day be of great benefit to the rubber trade cannot be doubted, as it will tell exactly what power is used or, better still, how many cents it costs to mass, grind and mix the rubber.

Another thing about which many manufacturers are profoundly ignorant is the amount of steam used for various processes; for example, in heating and calendering, or perhaps in curing and heating of belts or in vulcanizing a heater full of boots and shoes. They do not know what amount of steam is used, and as a consequence they do not know how much is needed nor can they regulate it. Here, therefore, is a chance for considerable waste and a chance which, without question, is daily improved. It may be argued that it would be difficult to measure the steam on a calender or a belt-press as the steam is let on for a little while and then cold water is let on. The steam, however, is measured by a little instrument known as the "steam-meter," which can be readily attached to the machine and registers continually the quantity of steam consumed, wholly independent of the water used. The old rule-of-thumb way was to weigh the condensation for a day and then make an average. The new way measures and records the usage of steam as it goes along and is exceedingly accurate in its results.

While, as has been hinted already, these measurements either of power or steam may not yet interest the rubber trade, the time will come when, acting under the law of the survival of the fittest, the rubber-manufacturers will awake to the fact that a stricter economy must be practised in order that competition may not cut all the profits out of the trade.

Rubber-Tree Culture in Florida.

IT is reported by the Washington *Star* that the cultivation of rubber trees is to be tried in the everglades of Florida under the direction of the Department of Agriculture. "Sufficient warmth and plenty of moisture, the two chief essentials, are to be found there. It is believed that plantations of the trees, established on a great scale, would prove enormously profitable. With this purpose in view experiments are now being made at Lake Geno with seeds and plants obtained from Brazil. The vast region of swamp referred to, covering thousands of square miles, is presumably capable of producing enough rubber to supply the world."